

Report of the Biodiversity Collaborative Group

Incorporating:

- Background Report for the Biodiversity Collaborative Group's Draft National Policy Statement for Indigenous Biodiversity
- The Biodiversity Collaborative Group's Draft National Policy Statement for Indigenous Biodiversity
- The Biodiversity Collaborative Group's Complementary and Supporting Measures for Indigenous Biodiversity

Embargoed until 25 October 2018

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Embargoed until 25 October 2018

Published in October 2018 by the
Biodiversity (Land and Freshwater) Stakeholder Trust
PO Box 631, Wellington 6140, New Zealand

ISBN: ISBN print version (print)
ISBN online version (online)

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Foreword

Aotearoa New Zealand's indigenous biodiversity is unique. Millions of years of geographic isolation have resulted in a vast assemblage of plants and animals found nowhere else in the world. Humans, however, have caused widespread extinctions and massive reductions in extent of habitats in a very short period since their arrival between 700 and 800 years ago. Today, 80 per cent of native birds, 88 per cent of lizards, and 100 per cent of frogs are threatened with extinction. Between 1996 and 2012 there was a net loss of 71,000 hectares of indigenous habitat, mostly in areas of lowlands, wetlands and coastal habitat, habitats which have been most reduced by human actions. Predators and weeds introduced by humans wreak havoc. These effects are ongoing. The decline in our country's indigenous biodiversity on land, in freshwater and in the surrounding seas is our most insidious environmental problem.

New Zealanders have a strong attachment to the country's landscapes and natural heritage. It is one of the features that defines us as a nation and as a people. A very large effort is being made to nurture our indigenous biodiversity and halt its decline. However, the overall national policy framework for this effort is not comprehensive or robust. There is a strong system for legal protection of public conservation areas, but this represents only a third of the country, mainly in mountainous areas. We tend to think nature is looked after because we have these protected areas. But it isn't. Increased effort is needed to manage areas already protected. More importantly, better direction is required to ensure that indigenous biodiversity outside protected areas is allowed to thrive.

Improving our country's indigenous biodiversity policy framework has been a goal of successive governments for over 20 years. But they have been unable to achieve consensus on how to do this, especially outside protected areas. An obvious tool to create consistency across the country is a national policy statement (NPS) under the Resource Management Act. Government first began to discuss the prospect of an NPS for biodiversity in 1999 and there have been a number of attempts to produce one since that time. Their failure to come to fruition is the product of the intense debate that this issue creates, and the government's subsequent response (to step back from progressing the instrument). In the meantime, New Zealanders' attachments to nature and efforts to halt the decline in indigenous biodiversity have grown. New Zealand promotes itself in the world as a place of unspoiled nature. Many of our overseas markets are demanding proof of our protection of the environment as part of their willingness to support our products. And while these trends gather pace, we continue to have an unsettled framework, resulting in division, costly debates, and litigation.

This report is the result of those with a major stake in looking after indigenous biodiversity – industry, landowners, tangata whenua and environmental non-government agencies (NGOs) – coming together and agreeing on an NPS that will work for our country's interests. But the report also covers something equally important. An NPS of itself will not be the complete solution. What is required is stronger and clearer leadership and coordination of effort at a national level; better support for landowners and managers; alignment and coherence of policies and institutions of government; and improved knowledge, monitoring and compliance. We set these measures out in an accompanying document. The combination of an effective NPS for indigenous biodiversity and well-resourced complementary and supporting measures will ensure our country finally achieves an effective overall framework for halting the decline in indigenous biodiversity, regardless of whether land is held in private, public or lease-hold tenure.

The Biodiversity Collaborative Group

The Biodiversity Collaborative Group (BCG) is a stakeholder-led group that was established by the Minister for the Environment to develop national level policy for indigenous biodiversity (native plants and animals and their ecosystems) in the face of ongoing decline and an urgent need for action to reverse this. This report and the accompanying draft NPS comes at the culmination of the process, which has run over 18 months since April 2017.

The BCG has developed a draft National Policy Statement on Indigenous Biodiversity (NPSIB) and recommendations to the Government on complementary and supporting measures to maintain indigenous biodiversity. To achieve this, the BCG has drawn on technical advice as well as input from government departments, tangata whenua, landholders, infrastructure providers, industry groups, environmental groups, academics and others, to ensure the Government has a robust evidence-based approach to policy with outcomes that are inclusive, effective and enduring.

The core members of the BCG are the Royal Forest and Bird Protection Society of New Zealand Incorporated, Federated Farmers of New Zealand Incorporated, the New Zealand Forest Owners Association, Environmental Defence Society Incorporated, a representative of the Iwi Chairs Forum through the Pou Taiao Iwi Advisors Group, and representatives from infrastructure industries. Local and central government representatives were involved as active observers and two targeted workshops were held with territorial authority representatives. The BCG was facilitated by an independent facilitator and supported by a small secretariat.



Members of the BCG, secretariat, observers and advisors at Te Mānuka Tūtahi Marae, Whakatāne.

Although some sectors and interests were not represented on the BCG, or were only represented for part of the process, participants took care where possible to ensure a range of perspectives were included in deliberations. Members of the BCG connected regularly with their wider networks – including with organisations outside the group’s membership – to check draft content and to seek feedback.

A collaborative approach to biodiversity policy was favoured because of the failure of previous attempts to create national regulation to halt biodiversity decline due to dissatisfaction on all sides with the proposed measures. The opportunity to commission and consider advice as a group, absorb other parties’ perspectives and workshop alternative options has been critical to reaching a high level of agreement on the content of the draft NPS. All members of the BCG have negotiated and compromised to reach agreement on what it believes is a pragmatic package. The BCG’s recommendations have been reached by consensus. Where consensus could not be reached, the parties’ respective positions have been recorded.

The next stage of the process will involve consideration of this report by officials and ministers including a cost-benefit analysis followed by a full consultation process in accordance with the Resource Management Act 1991 (RMA) before it is considered by the government for final approval.

Through this suite of recommendations we have provided the pre-conditions to halt the decline of Aotearoa New Zealand’s indigenous biodiversity and to ensure it will thrive. It will be necessary that the recommendations are implemented in full and given priority by current and successive governments, and supported by industry, hapū, iwi, landowners and all New Zealanders.

Part 1: Background Report for the Biodiversity Collaborative Group's Draft National Policy Statement for Indigenous Biodiversity

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Introduction

This background report provides the rationale for the BCG's draft National Policy Statement for Indigenous Biodiversity (NPSIB). It sets out the intent of the BCG in structuring the NPSIB as it is. As such, it is meant to assist officials, ministers, and those who may be affected by the NPSIB to understand the intention of the objectives and policies.

The overall reason for an NPSIB is to improve the way regional and territorial local government provide for indigenous biodiversity in plans. The RMA requires councils to maintain biodiversity. How they do this at present, however, is highly variable and has resulted in uncertainty, debate, and significant and costly litigation. Meanwhile, indigenous biodiversity continues to decline. A more settled and agreed regime to address the serious environmental problem of biodiversity decline is needed. An agreed NPSIB (with supporting and complementary measures) will do this.

This background report is structured the same way that the NPSIB is structured, beginning with comment on the scope and domains which the NPSIB applies to, followed by the rationale and intent for each of the six objectives:

1. Hutia Te Rito
2. Te Tiriti o Waitangi
3. Maintaining indigenous biodiversity and enhancing ecosystems
 - i. Identifying Significant Natural Areas
 - ii. Maintaining indigenous biodiversity
 - iii. Enhancing ecosystems
 - iv. Climate Change
4. Integrated and evidence-based management
5. People and partnerships
6. Wetlands.

For each objective, the report sets out what the issues are and how the NPSIB aims to address them. Where key complementary and supporting measures will be needed to ensure an objective is met, these are noted. Detailed explanation of the complementary and supporting measures is provided in Part 3 of this document.

This background report sets out where there were differences and concerns that individual sectors wanted to draw to the attention of officials when considering the next steps in the process. Some provisions in the NPSIB were unable to be agreed. Those provisions are shown in grey text. Other matters that require further consideration are shown in italicised text. There are some matters of detail, for example, in the section dealing with scope, which the BCG feels need further consideration by officials.

This is not the last word in creating a NPSIB. From here, the report produced by the BCG will be subject to review by officials and ministers, a cost-benefit analysis, and then consideration as part of Cabinet deliberations. Following that, if it is so decided, a draft NPS would be subject to

formal public submissions, a section 32 analysis under the RMA, and then another final consideration by the Minister for the Environment and by Cabinet consideration deciding whether to promulgate (gazette) the NPS. So, to quote Winston Churchill: 'this is not the end. It is not even the beginning of the end. But it is, perhaps, the end of the beginning'.

Scope

The RMA applies to land, freshwater and marine domains, including its requirements to safeguard the life-supporting capacity of ecosystems, identify areas of significant indigenous vegetation and habitat of indigenous fauna, and to maintain biodiversity. Regional councils also have a specific obligation to control the use of land for the purpose of maintaining or enhancing ecosystems in water bodies and coastal water. The BCG has approached the application of policy to freshwater and marine domains with caution. The BCG's caution on the freshwater and marine domains is partly due to the majority of information received being terrestrially focused, and partly due to not having the right stakeholders in the room. The freshwater and marine domains are as complex as the terrestrial environment, and policy development needs to be treated with equivalent care. There is already directive, effective national policy direction in respect of both in the National Policy Statement for Freshwater Management (NPSFM) and New Zealand Coastal Policy Statement (NZCPS). There are also other mechanisms for indigenous biodiversity protection in freshwater and marine environments, such as water conservation orders and marine protected areas. As a result, gaps relating to indigenous biodiversity identified by the BCG are tightly focused, principally around terrestrial environments (including wetlands).

Freshwater

The BCG agrees that section 6(c) RMA applies to fresh water. Many section 7 matters are also relevant to the freshwater domains, such as kaitiakitanga, intrinsic value of ecosystems, and the protection of the habitat of trout and salmon. Salmon and trout are introduced species but there are management issues that interact with indigenous biodiversity; the BCG received information that introduced species, including trout and salmon, are a threat to many indigenous species due to predation or competition. The NPSFM identifies a number of broad 'national' values that apply to fresh water, of which the compulsory ones are ecosystem health and human health for recreation. It also requires protection of outstanding freshwater bodies and wetlands, although it provides no direction on how to identify these or on the overlap with section 6(c) significant areas. There are other statutes that have a role to play in management of fisheries such as the Fisheries Act 1996 (tuna fishery), Freshwater Fisheries Regulations 1983 (fish passage), Conservation Act 1987 (whitebait fishery), and Biosecurity Act 1993 (pest fish and pest aquatic plants), but the mechanisms for management are not necessarily well coordinated with RMA functions.

Given this context, addressing freshwater indigenous biodiversity, in particular section 6(c) matters is multifaceted and complex, and requires specific attention to develop appropriate policy.

Identification of areas of significant indigenous vegetation and habitat of indigenous fauna

The BCG considers that further work to confirm the most appropriate method for identifying areas of significant indigenous vegetation and habitat of indigenous fauna in the freshwater environment is required and should be a high priority workstream. The BCG understands that this has been on the central government agenda for some time and that there is a base level of information available but that this has yet to be fully developed.

The BCG has not recommended using the assessment criteria in **Appendix 1** of the NPSIB to identify areas of significant indigenous vegetation and habitat of indigenous fauna in the freshwater domain because it has not received sufficient ecological advice to confirm it is suitable for that purpose. There is a concern from some of the BCG members that applying a spatial identification system for section 6(c) significant areas to a fluid environment, in the literal sense of the term, presents challenges. These members have suggested there may be other methods that can be used such as relating identification of section 6(c) significant freshwater areas to river classifications (River Environment Classifications (REC) or similar) and classifying the respective habitat values for indigenous fauna. The BCG has not investigated or received advice on this.

Recommendation

1. As a matter of priority, the Ministry for the Environment in conjunction with the Department of Conservation (DOC) and freshwater ecology experts should:
 - (a) Initiate an urgent work programme to develop and consider a range of approaches for identification of section 6(c) areas of significant indigenous vegetation and significant habitats of indigenous fauna for application in the freshwater domain.
 - (b) Assess as one possible approach whether the proposed Appendix 1 criteria in the draft NPSIB is suitable or could be amended so as to be suitable for use in the freshwater domain.
 - (c) Trial identified approaches, or a short list of approaches, to determine their ecological appropriateness and ability to be practically applied.
 - (d) Consider how the preferred approach should be incorporated into national policy and whether the NPSIB or the NPSFM is the most appropriate instrument. Amend the NPS that is identified as most appropriate to include necessary direction on identification.

Effects on freshwater indigenous biodiversity

The BCG has agreed any provisions in the NPSIB should not relate to water quality and quantity because that is covered by the NPSFM. In response to questions regarding what, if anything, the NPSFM did not cover that was necessary for maintenance of indigenous freshwater biodiversity, the BCG received expert advice confirming there are gaps in current national policy that need to be filled. These are:

- Protection of indigenous freshwater fauna itself (as opposed to the water it lives in), particularly threatened species.
- Consideration and protection of physical habitat and connectivity between systems, including feeding and refugia habitats, spawning habitat and connections between systems that will enable successful reproduction and juvenile recruitment into adult populations.
- Methods to examine cumulative effects and stressors on fish and other threatened indigenous freshwater species and habitats.

This policy gap is compromising the survival of Aotearoa New Zealand's freshwater fauna; around three-quarters of indigenous fish, a third of indigenous invertebrates, and a third of

indigenous plants are threatened with, or at risk of, extinction.¹ The likelihood of extinction of some species is high if the current trend of decline continues.

Activities identified in the advice received by the BCG (other than nutrient discharge) as potentially having a negative impact on indigenous freshwater species and habitats include:

- Diversion, piping and channelisation of streams
- Drainage and reclamation
- Flood management schemes (including stopbanks that separate streams from wetlands)
- Gravel extraction
- Other disturbance to beds and banks (such as drain 'cleaning', stock trampling, or recreational vehicles)
- Motorised activities on the surface of water bodies (and associated disturbance)
- Loss of riparian vegetation or planting of inappropriate riparian vegetation
- Structures that inhibit fish passage
- Earthworks
- Activities or effects that may increase the risk of aquatic habitats being colonised by pest plants and animals.
- Stormwater and other point source discharges
- Predation by introduced fish species

Unfortunately, due to time constraints, the BCG has not been able to draft and propose a policy to address impacts of human activities on indigenous freshwater fauna and their habitat and recognises this needs to be linked to the approach taken to identifying (and potentially separately managing) ecologically significant freshwater environments. It considers that such national policy direction is urgently required. An integrated approach to managing effects on indigenous freshwater biodiversity is required, taking into account the interplay between RMA functions, the NPSFM's objectives, policies, and national values for freshwater, and fishery and biosecurity functions of councils and other agencies. The BCG expects that this will involve measures for inclusion in an NPS (either the NPSIB or NPSFM), but may also include other complementary measures that may prove more effective in determining fishery management priorities or dealing with issues such as pest fish.

The advice provided to the BCG is an important and useful starting point for this work. The Group has no set view as to whether this issue should be addressed in the NPSIB or the NPSFM.

¹ Ministry for the Environment & Stats NZ (2017). *New Zealand's Environmental Reporting Series: Our fresh water 2017*. Retrieved from www.mfe.govt.nz and www.stats.govt.nz.

Recommendation

2. As a matter of priority the Ministry for the Environment, in conjunction with DOC, regional councils and freshwater ecology experts, should:
 - (a) Develop the policy needed to control adverse effects as necessary to protect section 6(c) matters and indigenous freshwater biodiversity more generally, and include such policy in the NPSIB or NPSFM.
 - (b) When developing this policy focus on matters that are currently not controlled under the NPSFM.
 - (c) Consider a range of options or mechanisms when developing policy.
 - (d) Consult with national stakeholders when developing this policy.

Marine

Identification

The BCG agrees that section 6(c) applies to the marine domain. Identification of marine SNAs is slowly starting to occur. Bay of Plenty Regional Council and Marlborough District Council are leading the charge as councils with responsibility for coastal-marine areas subject to significant pressure from both land and sea based activities. The Group considers it is important that continuation and expansion of this occurs as it is a crucial starting point for a strategic, region-wide approach to maintaining marine indigenous biodiversity. What constitutes an area of significant indigenous vegetation or habitat of indigenous fauna in the marine domain, and an approach for their identification, is not set out in the NZCPS, although there is likely to be some overlap with NZCPS Policy 11 factors.

The identification criteria in **Appendix 1** of the NPSIB are proposed to apply to the terrestrial and marine environments. The criteria were subject to review by marine ecologists with experience in SNA identification and developed to be able to be applied in both the marine and terrestrial contexts. In the marine environment the scale of at which the criteria are applied is that of marine biogeographic regions. Refer to the Section on *Identifying Significant Natural Areas* in this report for additional discussion.

Management

The BCG has not considered the policy framework for protecting marine section 6(c) SNAs because key stakeholders were not part of this collaborative process (as identification of stakeholders did not focus on the marine domain). The BCG considers development of such policy is important because SNAs in the marine environment are being identified, Aotearoa New Zealand's coastal marine habitats and ecosystems are becoming increasingly degraded, and our indigenous species are at significant risk of extinction.² The NZCPS already provides strong and effective protection for indigenous biodiversity through Policy 11, and through Policies 13 and 15 as an attribute of natural character and landscape. It is critical that any policy developed for the specific purpose of protection of section 6(c) SNAs areas builds on and does not compromise the positive contribution these policies make to maintaining our indigenous marine biodiversity.

² Ministry for the Environment & Statistics NZ (2016). *New Zealand Environmental Reporting Series: Our marine environment 2016*.

Recommendation

3. That the Ministry for the Environment with the support of the Department of Conservation and the Ministry for Primary Industries/New Zealand Fisheries draft policy for protecting marine Significant Natural Areas for inclusion in the draft NPSIB that is released for public consultation.

1. Hutia Te Rito

The NPSIB presents a unique opportunity to begin to transition Aotearoa New Zealand's environmental management system to one in which te ao Māori, mātauranga, and tikanga Māori, sit on an even footing with western environmental management as the system's philosophical underpinning. Hutia Te Rito (literally, 'to pluck out the centre shoot of flax') recognises the environment's intrinsic value, the importance of relationships and connections between people and the natural environment and the responsibilities they create, and peoples' dependence on a healthy environment. The step change offered by the Hutia Te Rito approach is the explicit recognition of the importance of familial relationships and connections between people and the natural environment. As stated by the Waitangi Tribunal in 2011:³

In te ao Māori, all of the myriad elements of creation – the living and the dead, the animate and inanimate – are seen as alive and interrelated. All are infused with Mauri (that is, a living essence or spirit) and all are related through whakapapa... The people of a place are related to its mountains, rivers and species of plant and animal, and regard them in personal terms. Every species, every place, every type of rock and stone, every person (living and dead), every god, and every other element of creation is united through this web of common descent, which has its origins in the primordial parents Ranginui (the sky) and Papa-tu-a-nuku (the earth).⁴

This transition is intended to be achieved through having Hutia Te Rito as the NPSIB's underlying framework, and the ultimate reference point for decision-making. This is achieved through policy requiring Hutia Te Rito be recognised and provided for in planning instruments in and of itself, and through integrated policy that requires decision-makers to protect mauri, retain connectivity, and have it guide their region's indigenous biodiversity enhancement and restoration vision.

As with Te Mana o Te Wai in the NPSFM, the concept of Hutia Te Rito cannot be distilled into a single, short definition. It is built upon the foundation of the whakataukī of the same name and described in the NPSIB:

... Hutia Te Rito provides a framework to achieve the integrated and holistic well-being of the natural environment. It recognises that the health and well-being of our natural environment, its ecosystems and unique indigenous flora and fauna, is vital for the health and well-being of our land, our freshwater, our coast, and our communities.

Upholding Hutia Te Rito acknowledges and protects the mauri (life force) of our indigenous biodiversity. This requires that in using the natural environment and its resources and providing for te hauora o te tangata (the health of the people), we have a responsibility to provide for the te hauora o te koiora (the health of indigenous biodiversity), te hauora o ngā taonga (the health of taonga species and ecosystems) and te hauora o te Taiao (the health of the wider environment). Resource use and development which degrades the mauri and hauora of our indigenous biodiversity will also degrade the hauora of our people.

³ Waitangi Tribunal (2011). *Ko Aotearoa Tēnei: a report into claims concerning New Zealand law and policy affecting Māori culture and identity*.

⁴ Waitangi Tribunal (2011). *Ko Aotearoa Tēnei: a report into claims concerning New Zealand law and policy affecting Māori culture and identity*, p. 267.

Hutia Te Rito incorporates the values of tangata whenua and the wider community in relation to indigenous biodiversity and the natural environment. The engagement promoted by Hutia Te Rito will help regional and district councils to develop meaningful, tailored responses to maintaining and enhancing indigenous biodiversity that work within their region.

By recognising and providing for Hutia Te Rito as the framework for managing indigenous biological diversity, it is intended that the health and well-being of indigenous biodiversity is front of mind in decision making about the natural environment, including the identification and protection of Significant Natural Areas and of taonga, restoring and enhancing depleted ecosystems as part of achieving landscape-scale ecosystem restoration, and halting the decline of our indigenous biodiversity to ensure it is maintained for the health, enjoyment, and use of all New Zealanders now and for future generations.

Using Hutia Te Rito as the underlying framework and ultimate reference point for decision-making is consistent with other emerging environmental policy and Treaty settlement legislation, like the NPSFM's Te Mana o Te Wai, which represent a convergence of Māori and non-Māori world views. Its adoption is intended to reflect the value that Te Ao Māori perspectives bring to the environmental management system for the benefit of te taiao (the environment) and all who reside in Aotearoa New Zealand.

2. Te Tiriti o Waitangi

As discussed under **Objective 1**: Hutia Te Rito, Māori perspectives in relation to indigenous biodiversity are founded upon familial relationships borne out of a shared ancestry from atua (gods, the children of Rangi and Papa). These relationships are confirmed by Te Tiriti o Waitangi and there are a range of supporting provisions and mechanisms within natural resource and settlement legislation that also recognise and give effect to relationships of tangata whenua with te taiao.

Within the RMA those provisions and mechanisms include section 6(e) RMA which requires decision-makers to recognise and provide for protection of relationships with taonga (treasures); section 7(a) which introduces the tikanga value of kaitiakitanga in relation to environmental management; section 8 which references the principles of Te Tiriti; sections 33 and 188 and the Mana Whakahono a Rohe provisions which provide opportunity for tangata whenua involvement in decision-making.

The implementation of many of these mechanisms has been ad hoc, unmonitored, and in some cases non-compliant with legislation. This was documented in the criticism and recommendations for change made by the Waitangi Tribunal's report on the Wai 262 claim.⁵ The Tribunal noted that future legislative reforms should be capable of delivering the following outcomes to kaitiaki:⁶

- Control by Māori of environmental management in respect of taonga where it is found that the kaitiaki interest should be accorded priority.
- Partnership models for environmental management in respect of taonga.
- Effective influence and appropriate priority to kaitiaki interests in all areas of environmental management when the decisions are made by others.

Barriers to incorporating mātauranga and tikanga Māori into legislation and to ensuring effective and meaningful engagement identified by Wai 262 and others reports include:

- Mātauranga and tikanga are not a defined part of the foundation of legislation, but rather additional considerations within the legislative framework.
- Decision-makers, including the judiciary, have struggled with understanding the meaning and importance of Māori interests, and also how to interpret evidence focused on Māori considerations.
- No process of identifying and then managing taonga has been developed.
- Existing mechanisms for Māori influence in environmental management and partnerships between kaitiaki and the Crown are underutilised.
- There has been a failure to recognise the unique limitations that apply to Māori land.

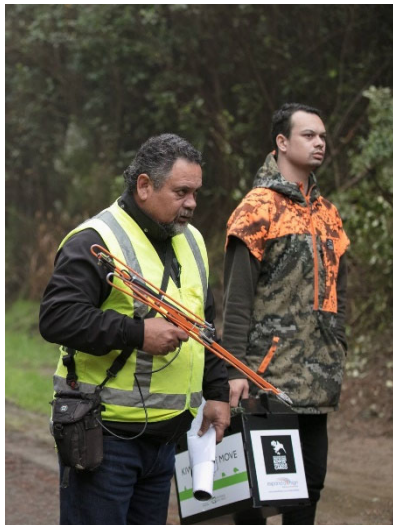
The BCG's intention is for the NPSIB to represent a significant shift in the role of tangata whenua in decision-making in respect of Aotearoa New Zealand's indigenous biodiversity, through the incorporation of tikanga and mātauranga Māori into the management of our indigenous biodiversity.

⁵ Waitangi Tribunal, (2011). *Ko Aotearoa Tēnei* (Report on the WAI 262 claim). Wellington: Waitangi Tribunal.

⁶ Waitangi Tribunal, (2011). *Ko Aotearoa Tēnei* (Report on the WAI 262 claim). Wellington: Waitangi Tribunal.

A core component of this shift is the incorporation of the concept of *Hutia Te Rito* which is intended to underpin decision-making. Facilitating meaningful engagement for *tangata whenua* in resource management and securing opportunities to exercise *kaitiakitanga* and for *kaitiaki* to jointly 'hold the pen' in decision-making is another. It is through **Objective 2** and **Policy 2** that this will be achieved. It is intended that local authorities will initiate consultation early to ensure that Māori perspectives are considered when pen is first put to paper to draft plans and policies; not as an afterthought. This will help to ensure that local authorities have the information and relationships to work with *tangata whenua* to incorporate *mātauranga* and *tikanga* Māori into the core of the planning framework, in environmental monitoring, effects management (for example through what effects are controlled, how they are assessed, and through *tikanga* tools like *rāhui*), and to ensure indigenous biodiversity management is through the lens of *hutia te rito*. Regional biodiversity strategies, a new planning document introduced by the NPSIB, are also a key mechanism through which this can occur.

Another equally critical component is the direction to identify and protect *taonga* in **Policy 11**. Elements of indigenous biodiversity that may be *taonga* include ecosystems, geographical areas, species, or even a specific individual tree or creature. Consistent with Article 2 of Te Tiriti o Waitangi and sections 6(e) and 7(a) of the RMA, this is intended as a way of recognising and providing for the relationship of Māori and their culture and traditions with their ancestral lands, water sites, *waahi tapu*, and other *taonga*, and to provide an opportunity to take the lead as *kaitiaki* in how those areas should be managed in order to ensure their protection.



Taonga species require active management. Kiwi tracking in Omataroa, Te Teko.

Māori also have an interest in resource use as well as protection. This 'use' interest is unique, first because it is underpinned by the concepts of *mauri*, *whanaungatanga*, and *kaitiakitanga* which mean the right to use the natural environment sits with a corresponding obligation to ensure it remains healthy, and second because of the barriers to the full and optimal use of Māori land.

Large tracts of land were taken from Māori after European colonisation of Aotearoa New Zealand, and what now remains in Māori ownership is often remote and difficult to develop or utilise productively. This is compounded by barriers to use of Māori land which include fragmented ownership, restrictions on sale, lack of access to bank lending, inefficiencies of legal processes relative to general land, and difficulties in accessing land information. Māori land plays an extremely important role in maintaining Aotearoa New Zealand's biodiversity for

future generations. Analysis undertaken for the BCG reveals that together, Māori land and general private land have the highest proportions of acutely threatened environments (environments with less than 10 per cent indigenous cover) with forest cover remaining. There is also a higher proportion of indigenous forest that is chronically threatened (10–20 per cent remaining vegetation cover) and at risk (20–30 per cent remaining cover) on Māori land than on other non-Crown land (approximately 1.8 per cent and 3.1 per cent of total land area respectively). More generally, around 33 per cent of land cover on Māori land is comprised of indigenous vegetation compared with 8 per cent of other non-Crown land. This gives rise to a risk that any limitations on the use and development of land that has significant biodiversity values could disproportionately impact on Māori and could exacerbate the disadvantages

created by the historic confiscation of land. In order to address this, **Policies 7 and 8** take a unique approach to development on Māori land by:

- Treating development of marae, papakāinga, and ancillary community facilities as a 'locationally constrained' activity to which a more lenient effects management approach applies in respect of section 6(c) areas of significant indigenous vegetation and habitat of indigenous fauna with 'medium' attributes.
- Directing decision-makers to specifically look for opportunities for the development of Māori land and to use planning incentives to encourage the protection or enhancement of indigenous biodiversity. This is supported by the Complementary and Supplementary Measures (CSM) Report, which recommends that new incentive opportunities such as payments for ecosystem services, tax incentives, and refinements to current schemes like the Emissions Trading Scheme (ETS) be urgently investigated.

3. Maintaining indigenous biodiversity and enhancing ecosystems

Identifying Significant Natural Areas

Under section 6(c) of the RMA, all persons exercising functions and powers under the RMA must recognise and provide for the protection of significant indigenous vegetation and significant habitat of indigenous fauna as a matter of national importance. Areas that section 6(c) applies to are often referred to as Significant Natural Areas (“SNA”), significant ecological areas, or areas of significant conservation value. Implementing the section 6(c) obligation requires an understanding of which natural resources within a district or region are ‘significant’. That term is not defined in the RMA, but significance criteria are usually specified in planning instruments, and over time the uncertainty (and consequently, litigation) over what constitutes ecological significance has decreased and there is now a large measure of agreement on this issue, at least in relation to terrestrial ecology. However, provision of nationally consistent criteria for identification of Significant Natural Areas is essential to ensure that SNAs are objectively and robustly identified, both to assist in their protection and management and to provide a measure of certainty to land owners/managers, local authorities and the community.

There are a range of approaches to SNA identification. Many territorial authorities identify SNAs in district plans. Some districts have identified SNAs only on public land, and others only on private land. Others do not identify SNAs at all, but will assess significance when they receive an application for resource consent for an activity that will affect indigenous vegetation or habitat. The drawbacks in the last approach are that councils do not have a comprehensive view of which areas in the district are significant or oversight of the impacts of activities that do not require consent, and stringent general vegetation clearance rules tend to be required, to ensure that impacts on *potentially* significant areas are assessed. Implementation of the NESPF is also hampered by a lack of SNA identification, given its reliance on rules that permit activities where specified standards are met, including standards relating to SNAs. It is difficult to apply this type of rule if there is no clarity as to whether areas are SNAs.

In some districts, SNA identification has been very contentious. Landowners have been concerned that identification of an area of privately owned land as SNA means that it is ‘locked up’ and cannot be used, or that the public may be given access to SNAs on private land. As discussed in the next section of this report, effects on SNAs must be managed, but new and existing activities are provided for, within appropriate constraints, and there is no intention to provide for public access to private land. In many districts, territorial authorities report that the SNA identification process has been a positive one that has forged better relationships between the council and landowners. This suggests that the quality of the SNA identification process is critical.

District-wide SNA identification takes time, requires a high level of expert input, and is resource-intensive. It is beyond the capacity of some councils that have a small ratings base and large land area, unless support is provided.

Identification of Significant Natural Areas in the coastal marine area and for fresh water are discussed in the “*Scope*” section in this Report.

One of the ways in which **Objective 3** proposes to maintain indigenous biodiversity is by identifying and protecting Significant Natural Areas. That objective is implemented by:

- **Policy 4** – Identification of Significant Natural Areas; and
- **Appendix 1** – Criteria for identifying Significant Natural Areas

Protection of Significant Natural Areas is a critical part of the framework for biodiversity management. There needs to be an understanding of the biodiversity values across all tenures, and mapping SNAs across both public and private land will assist in this understanding. **Policy 4** therefore requires territorial authorities to identify terrestrial SNAs throughout their districts and regional authorities to identify marine SNAs within the portion of the territorial sea under their jurisdiction.



Routeburn Track.

The BCG considered allocating responsibility for identifying SNAs across all domains to regional councils given their greater capacity, but on balance considered that we did not have enough information about the potential implications to be confident in recommending a shift away from the status quo of territorial authorities identifying SNAs on land. This role also sits well with territorial authorities given their functions relating to land use control. Similarly, the role of identifying marine SNAs fits with regional council functions. Nonetheless, we anticipate the need for regional and territorial authorities to work together, and also with the Department of Conservation and other government agencies, so that the process is cost-effective, timely and practical, and to ensure consistency between districts within a region (as per Recommendation 1.8 in the CSM section of this report).

The identification of Aotearoa New Zealand’s SNAs needs to be completed so that informed and effective decisions on protection and enhancement can be made, such as identifying a landscape-scale restoration project focused on ‘building on what we’ve got’ by connecting existing SNAs. It is also critical for monitoring overall environmental state and trends. In short, tenure neutrality across public and private land is crucial for effective biodiversity management.

Principles for good practice are laid out in proposed policy as matters to be applied in the assessment process. These principles were informed by evidence of what has worked well, and what has not. They are most applicable to SNA identification on private land, while different approaches may be appropriate on conservation land.

Standardised significance criteria for identifying significant natural areas, developed on the basis of expert terrestrial and marine ecological advice, are provided in **Appendix 1** of the NPSIB. The Group has approached identification and management as distinct, independent steps. Identification of significant natural areas is the first step and is a technical, scientific question dependent on ecological analysis of the ecological attributes of an area. The second step is determining how activities in significant natural areas are managed which is a policy

question (addressed below under Maintaining indigenous biodiversity). This approach is supported by the Courts. It is also underpins development of the NPSIB's definitions, with management being addressed through policy, not through including exceptions in definitions.

The BCG members agree with the criteria, subject to the following reservations:

- The BCG has sought advice from a range of ecologists with different areas of expertise and geographic knowledge in developing the significance criteria, but recognises that further input through the public submission process will be valuable. Federated Farmers and FOA are concerned that the criteria may inappropriately cover an overly broad amount of indigenous vegetation and habitat in non-indigenous vegetation. However the advice we have received is that the criteria are similar to second generation plan/regional policy statement criteria (and the Department of Conservation Guidelines) and are not unduly wide. If that is the case, that is consistent with the BCG's intention for the criteria.
- Notwithstanding, FOA and Federated Farmers are concerned that the criteria could potentially result in the majority of plantation forests being identified as SNA and that this could prevent the ongoing productive use of this land, including through the varying management approaches that could be adopted by councils. This would create significant uncertainty for existing and future forest owners. It is proposed by the Group to address this issue via: (1) **Policy 7(2)** which seeks to clarify that where plantation forestry is identified as SNA, plantation forestry activities in that area are able to be carried out in accordance with the provisions of the NESPF and (2) through complementary recommendations in the CSM Report regarding Regulation 93 of the NESPF and clearance of indigenous vegetation in significant natural areas, and measures to address adverse effects on indigenous fauna.

Despite this agreed intent and the resulting measures that have been included, FOA has remaining concerns due to its view that the entire NESPF was drafted on the assumption that SNA vegetation would be indigenous forest remnants only, not the productive forest estate. FOA considers that to achieve an outcome consistent with the intent of Policy 7(2), amendment to numerous regulations within the NESPF would be required and that such amendments would have to be very carefully drafted to ensure they achieved that intent (protection of indigenous forest remnant SNA's but not the production forest itself). FOA is not confident this can be achieved without introducing confusion and undue complexity.

The Group considers that the impact of production forestry being identified as SNA due to either understory indigenous vegetation or presence of indigenous fauna is a matter that could be addressed through considering this in the context of these provisions as part of the review of the NESPF.

FOA has expressed the view that this needs to be resolved by way of amendment to Appendix 1 or associated policy guidance to provide an exception for plantation forestry (to the effect that plantation forests established in exotic conifer or eucalypt species intended for production thinning and selective or clearfell harvesting cannot be designated SNAs, regardless of the presence of indigenous fauna or understory). This is not agreed by the rest of the BCG members for the reasons set out under *identifying significant natural areas*.

The criteria and direction to identify SNAs also applies in the coastal marine area, for which the framework is the marine biogeographic area.

The BCG recognises that financial and technical support will be required to support the mapping of SNAs in districts and regions where there are resource constraints due to their large geographical areas and/or small ratepayer base. The BCG also considers that the cost of SNA identification on Crown land should be borne primarily by central government. These matters are addressed in CSM Report recommendations **1.7 and 1.10**.

Transitional provisions are also provided within the NPSIB (**Policy 22**). The intention is that councils that have recently completed mapping of SNAs in a way that substantially meets the requirements of the NPSIB will not need to repeat the process as a result of the promulgation of this NPS. A specific transition period is provided for other councils to undertake the SNA identification exercise.

Maintaining indigenous biodiversity

Many species and ecosystems in New Zealand are continuing to decline (become more threatened). This is primarily due to the impacts of pest species and other human activities with habitat loss and degradation being the key driver of biodiversity loss. Change in land cover, both historic and recent, is a significant pressure on ecosystems, particularly in coastal and lowland areas. Remaining indigenous vegetation cover is mostly in hilly and mountainous areas, with only small fragments in lowland and coastal environments. This distribution is not representative of the full range of indigenous ecosystems and habitats.⁷ Nearly 83 per cent (285 of 344 taxa) of land vertebrates classified in the threatened species system are either threatened with or at risk of extinction, and the status of 11 species declined in the most recent census.⁸

Maintenance of indigenous biodiversity is a mandatory function of district and regional councils under the RMA, but there is lack of clarity about what that means, and how the function ought to apply. There is ongoing biodiversity decline despite first generation regional and district plan provisions that address the biodiversity function of local government. There



Maintenance of indigenous biodiversity is required under the RMA.

is a lack of recognition of the cumulative effects of activities on Aotearoa New Zealand's flora, fauna and ecosystems. Some decisions under the RMA give inadequate regard to the impact of activities on ecological values and the implications for biodiversity maintenance. This is exacerbated by inadequate monitoring and enforcement.

Protection of SNAs and maintenance of biodiversity beyond SNAs is critical, but what does 'protection' mean when many existing activities occur within SNAs,

and some new activities will seek to establish there? How are those matters to be reconciled where new activities are particularly important to New Zealanders' social, cultural and economic wellbeing? What are the attributes of ecosystems beyond SNAs that need to persist to maintain biodiversity?

The RMA requires that positive measures proposed by an applicant to compensate for adverse effects are taken into account in resource consent decision-making, but this is 'subject to Part 2'. This creates uncertainty about how such measures should be taken into account where the natural resources affected by the consent application are required to be protected under Part 2, or other Part 2 values are also applicable.

Maintenance of biodiversity means ensuring that there is no loss of variability among living organisms, and the ecological complexes of which they are a part, including diversity within species, between species, and of ecosystems. The question of what this means in practice, and how we know whether it is being achieved, was a key issue investigated by the BCG.

⁷ Ministry for the Environment & Stats NZ (2018). *New Zealand's Environmental Reporting Series: Our land 2018*. Retrieved from www.mfe.govt.nz and www.stats.govt.nz.

⁸ Ibid., p 98.

The BCG considers it appropriate to use regulatory direction in the NPSIB as the preferred means to 'maintain what remains'. Enhancement of ecosystems, however, is to be achieved primarily through non-regulatory complementary and supporting measures, supported by target setting, alignment and prioritisation of actions discussed in the next part of this report.

The NPSIB uses four attributes that contribute to indigenous biodiversity:

- species occupancy
- indigenous character
- ecosystem representation⁹
- ecosystem connectivity, buffering, resilience and adaptability.

In **Objective 3**, maintenance of indigenous biodiversity means that there is no reduction in those attributes from their state at gazettal of the NPSIB. This is to be achieved by identifying and protecting SNAs, and by safeguarding the life supporting capacity of ecosystems and their biodiversity, functioning and adaptability. To assess whether this is being achieved will require good baseline data, and in some cases will require a significant step forward by councils and landowners, including the Crown.

The maintenance of the indigenous biodiversity objective is achieved through **policies 5, 6, 7, 8, 9 and 12** of the NPSIB, supported by **Appendices 2 and 4**. These policies address managing effects of subdivision, use and development within and beyond Significant Natural Areas.

The BCG wished to provide clear direction on effects management, and so commissioned advice on the particular effects that must be avoided to maintain indigenous biodiversity and the effects that could be remedied or mitigated.¹⁰ The BCG also received advice from many other experts on the key human threats to biodiversity.¹¹ The effects that were consistently identified throughout the advice as key effects to avoid were fragmentation, loss of extent, disruption to sequences, mosaics and processes, loss of buffering or connectivity and reduction in population size of threatened or at risk species. In setting these environmental bottom lines, the BCG anticipates that activities with minimal effects (such as the establishment of maimai or bird-watching huts) and sensitively located activities that do not cause those specified effects, will be consistent with the bottom lines. Other effects that must be managed as necessary to protect the ecological integrity of the SNA include degradation of mauri or ecosystem quality, pest plant or animal incursions, disruption of indigenous fauna by people, pets and livestock, loss of people's connection with nature and cumulative adverse effects on ecosystems. These effects are controlled by **Policy 6** (within SNAs).

⁹ Attributes 1 – 3 are based on the 'ecological integrity' framework established in Lee, W., McGlone, M., Wright, E. (2005). *Biodiversity Inventory and Monitoring: a review of national and international systems and a proposed framework for future biodiversity monitoring by the Department of Conservation*. Landcare Research Contract Report LC0405/122 for the Department of Conservation. The BCG preferred the term 'indigenous character' to 'indigenous dominance' (used in Lee, 2015), as the latter could be understood to mean that the indigenous component must dominate any exotic component (i.e., be more than 50 per cent) in terms of cover or species composition, whereas the attribute that is to be maintained is the extent of indigenous character, regardless of whether it is presently 'dominant' or not.

¹⁰ Walker, S., Lee, W., Bellingham, P., Kaine, G., Richardson, S., Brown, M., Greenhalgh S. and Simcock R. (2018). *Critical factors to maintain biodiversity: what effects must be avoided, remediated or mitigated to halt biodiversity loss?* Manaaki Whenua/Landcare Research Contract Report LC4001.

¹¹ As discussed in the BCG's Evidence Synthesis Report.

‘Disruption to fauna’ refers to examples such as new subdivisions (with concomitant people and pets) close to areas with important flightless bird or lizard habitat, motorised vehicles or people with dogs in important shorebird nesting areas, and livestock in wetlands. The reference to human connection with nature refers to the historical, cultural, scientific and natural character values of indigenous flora and fauna, and is not intended to be used to enable public access to or across privately owned land.

The BCG agrees that environmental limits are important. There is uncertainty about the impact of these limits in terms of controls and restrictions on activities on the ground, particularly given that the BCG is also recommending nationally applicable significance criteria and mapping. The risks are large and cut both ways. Limits that apply too broadly, risk unduly constraining viable economic opportunities and social benefits. Limits that are too narrowly applied may fail to meet the goal of protecting SNAs and the broader goal of maintaining biodiversity.

Parts of the country present particular challenges. Federated Farmers has identified the West Coast of the South Island as one such area due to its unique character, significant proportion of public land, and consequent reliance upon use and development of remaining privately owned land. Another challenge is areas subject to tenure review where there are sometimes conflicting expectations following tenure review as to the landowner’s ability to develop land transferred to the former leaseholder as freehold title. An underlying reason for this lack of clarity is poor integration between tenure review and RMA processes.

The BCG considers that the inclusion of a precautionary principle in regard to effects on indigenous biodiversity that are uncertain, unknown or little understood, will be able to be fully assessed by the Government, following consideration of the suite of effects management policies and in light of the foregoing matters. Reasons for including the precautionary principle are gaps in information about biodiversity pressures, states and trends, acknowledged decline in many species despite management effort, and to enable consistency with both the management of effects in the coastal environment (where a precautionary principle applies under the NZCPS), and international obligations under the Convention of Biological Diversity. Reasons for not including it would be an assessment that precaution is already inherent in the proposed NPSIB and uncertainty as to how it is implemented, in particular in the consenting context where it can result in unreasonable requirements for information and assessment.



Opportunities exist across Aotearoa New Zealand’s productive landscape.

Beyond SNAs, the effects management framework encompassed by the draft NPSIB is less directive in terms of how effects are to be managed, and is focussed on the outcomes sought across regions and districts: control of cumulative effects on biodiversity attributes, control of pest plants and animals, and opportunities to incentivise restoration or enhancement (**Policy 11**). The types of controls envisaged on pest plants and animals might include controls:

- on earthworks to mitigate the risk of kauri dieback spread
- on planted species to mitigate wilding conifer spread (e.g., tree plantings for shelterbelts)

- on domestic or stock animal species (e.g., goats in areas where there is a high risk of them becoming feral).

Some activities have the potential to impact on SNAs even if they occur outside them. An example is subdivision for urban and rural-residential purposes which, if it occurs close to vulnerable fauna habitat, can have adverse effects through increased pressure from people, their pets and vehicles. New subdivisions should avoid increasing the risk of harmful disturbance to fauna within SNAs. The BCG has included a 'placeholder' for this to be considered in **Policy 11** but has not provided specific wording due to this issue being identified at a late stage.

The Group has considered the use of development incentives to achieve positive outcomes for indigenous biodiversity. Development incentives provide a 'reward' for protection, enhancement, or restoration of indigenous biodiversity typically through either an easier consenting pathway or by providing development opportunity over and above what is generally available in the area. There are two types of development incentive; insitu development incentives which provides the development in the same area or proximate to where protection, enhancement, or restoration is to occur, and transferrable development right whether the development opportunity is transferred from the location where protection, enhancement, or restoration is to occur to an area earmarked for development. Evidence before the BCG revealed that insitu development incentives (for example increased subdivision opportunity as a reward for protection) have resulted in poor environmental outcomes across the country because they have the paradoxical effect of increasing development and human use pressures in direct proximity to the environment being protected, and because the protection or enhancement part of the bargain is often not followed through. On the other hand, transferrable development rights relieve development pressure and support other community objectives such as focusing development on existing urban areas. The Group concluded it did not have sufficient information to recommend cessation of insitu development incentives however through **Policy 20** it has directed that use of transferrable development rights should be preferred and that any proposal to include insitu development incentives should be approached with caution. **Policy 20** also included specific direction on the components of a transferrable development right regime, the ecological elements of which are equally applicable to an insitu development regime.

The BCG recognises that some fauna species that are important to protect because of their rarity are highly mobile and can be difficult to detect (e.g., bats), and are therefore likely to rely on areas that are not identified as an SNA. Failing to recognise these species' vulnerability means they are unlikely to persist in those areas. **Policy 14** envisages that councils will consider where these species may be present in their district or region and take steps to protect them by mapping their likely habitat where practicable, educating people about the species' needs and incorporating into measures to avoid, remedy or mitigate adverse impacts in relevant plans as necessary to ensure the persistence of these species across their natural range.

The proposed effects management framework is informed by ecological advice and consideration of how to provide for activities that are important to New Zealanders' social, cultural and economic wellbeing, informed by presentations and the experiences of group members (and their wider networks). In response, **Policy 7** provides for particular activities associated with existing uses, immediate risks to health and safety, natural features that are ecologically significant but which were established for other reasons (e.g., artificial wetlands created to manage nutrient discharges), and plantation forestry as provided for in Regulation 93 of the NESPF. In addition, **Appendix 2** distinguishes between high and medium value

ecological attributes, and **Policy 7** provides for certain activities that are spatially constrained (such as important infrastructure, mineral or aggregate extraction or certain developments on Māori land) to establish in a manner that avoids, remedies, mitigates, offsets or compensates for their effects. To provide for the reasonable use of land and avoid a 'goldrush' of subdivisions, **Policy 7** provides for a single dwelling on an allotment created before the NPSIB, where that dwelling would not be able to avoid adverse effects.

Policy 7 (1)(h) and (2) were late additions to the draft NPSIB and require further consideration. The intent of the BCG is that the NPSIB needs to provide a management framework to enable plantation forestry including harvesting, re-establishment (but not afforestation) and associated activities to be managed in accordance with the NESPF even if the plantation forest itself is an SNA (which FOA opposes). The BCG also agrees that the NESPF would need to be amended to provide a management regime for vegetation clearance in circumstances where the plantation forest is identified as a SNA. The BCG also agrees that the NESPF's provisions relating to fauna will need to be reviewed. As noted FOA remains concerned that considering the specific issues identified by FOA as part of the NESPF review, as suggested by the rest of the Group, will be complex given the large number of regulations in the NESPF that make reference to SNAs. FOA believes it will be difficult to achieve this without creating very complex wording and confusion in the interpretation of the NESPF. The other members of the Group do not agree for reasons already expressed.

FOA is of the view that Appendix 1 should be amended to specifically exclude plantation forests established in exotic conifer or eucalypt species intended for harvesting, regardless of the presence of indigenous fauna or understory. The agreed intent for the management of plantation forests would then be achieved by way of the NESPF and through Policy 14, which will in turn link back to fauna rules in the NESPF. This would remove the need for complex amendments to the NESPF and importantly would avoid the perverse outcomes associated with planted vegetation becoming SNA over time (deterring planting, the planting of longer rotation species and predator control). The rest of the BCG do not agree with this approach and amending Appendix 1, for the reasons expressed above.

The BCG did not agree on whether **Policy 7** should make further provision for renewable electricity generation activities, the electricity transmission network and identified geothermal systems.

- The infrastructure representatives on the BCG consider that:
 - Renewable electricity generation by necessity must be located where the renewable resource exists. Additional renewable generation is necessary to meet New Zealand's growing energy needs, to further decarbonise New Zealand's electricity system and to decarbonise other forms of energy use – especially transport and industrial energy. This is a crucial cost-effective opportunity for Aotearoa New Zealand to respond to climate change and transition to a low emission economy.¹² The National Policy Statements for Renewable Electricity Generation and Transmission set out

¹² The Productivity Commission report on a Low Emission Economy found that one of three shifts that must occur to transition New Zealand to a low carbon economy is to 'stop burning fossil fuels and switch to using electricity and other low-emission energy sources'. The report estimates that an increase in new renewable generation equivalent to approximately 50 per cent of current electricity generation will be required by 2050. The report is available at www.productivity.govt.nz/inquiry-content/3254?stage=4. Transpower estimate in their report 'Te Mauri Hiko' that an increase of more than 100 per cent will be required over that timeframe. This report is available at www.transpower.co.nz/about-us/transmission-tomorrow/te-mauri-hiko-energy-futures

objectives that need to be reconciled case-by-case based on an assessment of all relevant considerations.

- Effects of new renewable generation facilities on biodiversity and other values are thoroughly assessed and managed under resource consent processes. However it is not feasible that all actual and potential adverse effects on biodiversity can be avoided. Accordingly, policy wording is sought that allows for resource consent applications to be made and determined according to their overall merits. For geothermal generation there is a well-established regional resource approach to the management of that resource and its biodiversity in those locations that ought to be reflected in the policy approach.
- The environmental NGO representatives consider that:
 - it is important that the NPSIB establishes biophysical bottom lines to implement the ‘protection’ element of sustainable management. This means ensuring that the most egregious effects are avoided in the highest value areas. Generation and transmission of electricity should occur in a manner that is consistent with maintaining indigenous biodiversity. The NPSIB already makes provision for activities to affect Significant Natural Areas, contrary to ecological advice that these effects must be avoided. Making further provision for these effects to occur carries a significant risk of failing to meet the NPSIB’s objectives.
 - climate change is a critical issue but care needs to be taken to ensure it is not relied on as a justification for effects beyond biophysical bottom lines. The continued loss of indigenous biodiversity, for its intrinsic value and the ecosystem services it provides will have negative consequences. New Zealand’s transition to net zero must occur in a way which protects and respects our natural environment if it is to be sustainable and avoid repeating the losses associated with past eras of significant industrial development. The wording supported by the environmental NGO representatives in **Policies 6 and 7** is intended to strike this balance between protecting the most significant parts of our natural environment, and providing for new infrastructure, including renewable energy, to achieve New Zealand’s climate mitigation targets.
 - we do not have sufficient information to agree to a separate approach for geothermal features.

The NPSIB provides for some effects on ecological values to be offset or compensated for. These biodiversity-related intervention measures address residual adverse effects on ecological values by providing a positive effect to counterbalance the adverse effects of a particular development. The NPSIB includes biodiversity offsetting principles in **Appendix 4**. The BCG did not agree on whether biodiversity offsetting and compensation should be applied to ‘significant’ residual adverse effects:¹³

- infrastructure representatives, Federated Farmers and Forestry Owners’ Association consider that ‘significant’ is an appropriate level of adverse effect to focus offsetting and compensation measures on. It is a threshold that has either been agreed or determined by decision-makers as being appropriate in various regional policy statements and plan provisions relating to biodiversity management.
- the environmental NGO representatives consider that offsetting should apply to all more-than-minor adverse effects. They note that the Government Guidance on Good Practice

¹³ Appendix 4, principle 1.

Biodiversity Offsetting refers to 'significant' residual adverse effects but goes on to clarify that this means 'ecologically meaningful' rather than a 'significant effect' as used in the RMA.

The BCG's proposed draft NPSIB also has a definition for biodiversity compensation. The BCG reached agreement on the definition, and the place of compensation in the effects management framework, subject to one point of disagreement – whether compensation should achieve no net loss of affected ecological attributes:

- infrastructure representatives, Federated Farmers and Forestry Owners' Association consider that environmental compensation is a more flexible management approach than offsetting and this is a distinct advantage. Calculating no net loss is a highly technical exercise, in various real examples it has proven to be expensive and contentious. Requiring environmental compensation to achieve a no net loss outcome for biodiversity would effectively create a 'no adverse effects' regime. Furthermore, there are various examples of compensation agreements that provide highly valued biodiversity outcomes¹⁴ but where the outcome could not be considered to be no net loss. The inability to provide for such approaches as future options (subject to any development proposal being able to gain or renew a resource consent) may risk poorer outcomes overall.
- the environmental NGO representatives consider that when it comes to indigenous biodiversity, compensatory measures should only be a relevant consideration under the NPSIB where they achieve no net loss of relevant ecological values. Maintenance of indigenous biodiversity is a mandatory function under the RMA, and measures that do not maintain indigenous biodiversity (because they cause a net loss of species or ecosystems) are not consistent with achieving that function, and therefore should not be provided for in planning instruments under the RMA. That does not mean that there is no difference between biodiversity compensation and biodiversity offsetting. A biodiversity offset must meet all of the principles in **Appendix 4**, whereas biodiversity compensation measures only need to provide a positive, measurable outcome that achieves no net loss. They disagree that a requirement for no net loss means 'no adverse effects' are allowed. Under this approach, effects are allowed where they can be offset or compensated for in a way that maintains biodiversity. If a definition of compensation is adopted that does not require achievement of no net loss, the environmental NGO representatives do not support provision for biodiversity compensation in **Policy 7**.

The BCG sought to provide specific direction on how existing activities and replacement consents are to be managed and provided for. **Policy 8** distinguishes between activities and structures that could feasibly be required to cease at consent expiry or to operate in a different way (e.g., inappropriate wetland drainage) and those where it is not feasible that the activity and its effects would cease on consent expiry (e.g., a major hydropower dam). For the latter type of replacement consent, the policy seeks to ensure that reasonable steps are taken to mitigate existing and ongoing (in a 'more or less continuous manner') effects as far as practicable.

¹⁴ 'Project River Recovery', a compensatory agreement between Meridian Energy, Genesis Energy and the Department of Conservation. See <https://www.doc.govt.nz/our-work/project-river-recovery/>; 'Whio Forever Recovery Programme', agreement between Genesis Energy and Department of Conservation. See <https://www.doc.govt.nz/about-us/our-partners/our-national-partners/genesis/>; Waikato Catchment Ecological Enhancement Trust (WCEET) agreement between Mercury Energy and WCEET. See <http://www.wceet.org.nz/partners/>.

The NPSIB expressly recognises the contribution that existing activities make to social, cultural and economic wellbeing, and generally provides for existing activities to continue. However, there are situations where existing activities have effects that are inappropriate on biodiversity, and the effects should cease or change. The NPSIB envisages that these circumstances will be identified in regional policy statements.

As part of developing policy addressing existing activities the BCG has given particular consideration to the maintenance of improved pasture, which comprises a range of farming activities including grazing, oversowing, top-dressing, spraying with herbicide, direct drilling of seed, cultivation, and irrigation. Improved pasture exists on a spectrum from wholly exotic grass species, to mixed exotic-indigenous grasslands, or exotic grasslands interspersed with indigenous shrublands. As a result improved pasture may have no, or anywhere from low to high, indigenous ecological value.

Generally, continuation of farming practices to maintain improved pasture that (i) have occurred on site as part of cyclical farming practices and (ii) are carried out at the same intensity and scale, will be unlikely to have adverse effects. However, this is not always the case. For example, where improved pasture is in areas that historically supported indigenous grassland, and which continue to have indigenous grassland species present (because the site has never been cultivated or irrigated), persistence of the indigenous grassland component is important, and may not be compatible with all forms of improved pasture maintenance. Some indigenous vegetation may also require protection as habitat for indigenous fauna.

These are difficult issues to determine at a national level given the ecological differences between regions and districts. Some regions and districts already have improved pasture provisions in place, based on ecological factors specific to that region or district, that work well. Others have improved pasture provisions that are allowing intensification in areas with ecological value. Care needs to be taken to ensure that national policy direction supports good provisions but drives improvement of poor provisions.

Federated Farmers is concerned that some activities necessary to maintain improved pasture are not able to be carried out in a manner that avoids loss of indigenous vegetation. Forest & Bird and EDS are concerned to ensure that in areas of improved pasture that support an ecosystem of mix-exotic indigenous vegetation that has ecological value, the indigenous component is maintained.

Federated Farmers, Forest & Bird and EDS have spent a considerable amount of time working on this issue, with different formulations proposed and considered by each group. The policy wording proposed by Federated Farmers that is included in Policy 9 in grey text as not agreed was provided after much discussion, but nearing the end of the process and because of time constraints other members have not yet been able to consider it or associated definition requirements, or receive ecological advice. A definition of improved pasture will be required to support the policy. Extensive work on this has also been undertaken. Federated Farmers, Forest & Bird, and EDS consider that a solution is possible on both the policy and definition and remain committed to resolving this. It suggests that as part of the Ministry's NPSIB policy assessment phase, prior to public consultation, it convene a focus group for an intensive workshop on the issue, comprising Federated Farmers, F&B, EDS, and DOC and supported by a planner and ecological experts with expertise in the north and south island. This is an important issue to the three groups for certainty, clarity, and because of its implications both ways.

Additional considerations apply in respect of Māori land, as described in the section on *Te Tiriti o Waitangi* in this Report.

The specific effects management framework for wetlands is discussed in the section titled *Wetlands* in this Report. As discussed in the Scope section, the BCG has not included effects management policies for freshwater (other than wetlands) or marine domains in the NPSIB.

The BCG recommends that guidance on the implementation of these provisions is provided by the Ministry for the Environment.

Enhancing ecosystems

There has been widespread loss of biodiversity across Aotearoa New Zealand, particularly in lowland and coastal environments. There is now less than 10 per cent remaining indigenous vegetation cover (which can be used as a proxy for indigenous biodiversity) throughout most of the country's lowland zone. In the worst cases, the depletion of indigenous ecosystems and the loss of biodiversity is so great that the only prospect for maintenance of indigenous biodiversity is to reconstruct indigenous habitat.¹⁵

The BCG received advice that critical thresholds mark the line between decline or persistence of an ecosystem and its constituent species, with the most important threshold being the fraction of the landscape covered by indigenous ecosystems. Ecologically, it is generally



Vulnerable species like kiwi will not survive without targeted programmes to protect their habitat.

accepted that when ecosystems persist at 10 per cent or less of their original extent, a decline in many species may be triggered, with severe fragmentation effects.

Currently, the remaining indigenous cover in nearly all of Aotearoa New Zealand's largest urban centres is well below 10 per cent and there is a wide range of variation in the peri-urban zone depending mainly on topography. New Zealand's towns and cities typically occur in the lowland zone and have urban cores and peri-urban areas that are drastically altered from original

natural states. While the size and extent of remnant vegetation patches generally increase from the city centres to peri-urban and rural zones, only nine of the 20 largest urban centres exceed 10 per cent indigenous vegetation cover at approximately 5 km from the urban core. Applying a Land Environments of New Zealand (LENZ) analysis, the urban cores comprise 63 (of 158) acutely threatened land environments (which make up 66 per cent of the land area) and 13 chronically threatened environments. Only 10 of the 100 land environments in the urban core are classified as not threatened. This underscores the importance of urban areas to the national biodiversity picture. The high proportion of acutely threatened environments, while highlighting the major impacts of urbanisation on biodiversity loss, also indicates potential to contribute to the protection, restoration and reconstruction of threatened environments in cities. In addition, given that most New Zealanders now live in urban centres, the loss of indigenous biodiversity and opportunities to experience nature in day-to-day life has significant implications for people's wellbeing and connection to the natural environment.

Buffer or peri-urban areas are also critically important: 60 acutely threatened environments (38 per cent of all acutely threatened environments) have more than 10 per cent of their land area within a 20 km zone of urban areas, and 22 acutely threatened environments have more than 50 per cent of their area represented within those urban and peri-urban zones.

¹⁵ Clarkson, B., Kirby C. and Wallace, K. (2018). *Restoration targets for biodiversity depleted environments in New Zealand*. The Environmental Research Institute, University of Waikato.

In addition to the reconstruction focus described above, enhancement or restoration and active management of Significant Natural Areas and ecological connections and linkages is often necessary to protect these areas' significant ecological values and safeguard the life-supporting capacity of ecosystems.

There are many positive actions underway in New Zealand aimed at enhancing and reconstructing indigenous ecosystems. Environmental and social gains can be magnified if these positive existing actions can be aligned to national priorities and expanded. As discussed in the CSM Report, it is important that new policy approaches support rather than cut across existing efforts. The BCG is aware of a number of barriers to expansion of enhancement and restoration initiatives, and received advice on the likely costs per hectare if restoration was focussed solely on acutely threatened LENZ environments. Given the challenge in achieving restoration targets (and then maintaining these targets once achieved), a balance will need to be struck between managing resources available to the community and regional councils to achieve restoration of a range of priority ecosystems.

It is more efficient and cost-effective to maintain existing indigenous ecosystems than to try and create new ecosystems. There are inherent difficulties and risks in seeking to recreate or reconstruct indigenous habitat in order to mitigate for continuing removal of indigenous habitat for development projects, and that mitigation may not result in an ecosystem of equivalent richness or function. However, advice received by the BCG is that it is possible to reconstruct or re-create high quality indigenous habitat to complement (rather than replace) measures to protect existing ecological values. This can bring indigenous nature back into urban centres, the peri-urban zone and other highly modified landscapes.

The BCG was advised that adoption of a formal target is important to provide a goal to inform and develop biodiversity protection strategies, and that for urban and peri-urban areas, that target should be at least 10 per cent indigenous cover. Urban centres would, on average, require 396 ha of additional indigenous cover to reach a 10 per cent target. The minimum top-up required is in New Plymouth (one per cent or 35 ha) and the maximum in Christchurch (9.5 per cent or 1365 ha). Achieving the target would require different combinations of protection, restoration and reconstruction depending on the different characteristics of each urban centre. The cost and time to achieve the target would vary dramatically.

The type of indigenous cover matters: the 10 per cent indigenous cover target needs to accommodate all of the major ecosystems naturally and formerly present in the area under consideration. A diverse as possible array of species should be restored to represent all elements of the functioning ecosystem that occurred before anthropogenic degradation. Connectivity is a key consideration, as biodiversity generally declines with greater degrees of fragmentation because small, isolated patches of indigenous ecosystems can support only small populations of species.

Having a minimum target of 10 per cent in depleted environments helps focus attention on the magnitude of enhancement required to reduce biodiversity decline across the wider landscape. But having the target on its own will be insufficient if it is not backed by a national and regional scale strategy and implementation plan to achieve the target.

Objective 3.2 of the NPSIB is to enhance the sustainability of indigenous biodiversity depleted environments through the restoration and reconstruction of a representative range of indigenous vegetation and habitats.

Indigenous biodiversity depleted environments are described in **Policy 19** as areas where indigenous cover is below 10 per cent of its original extent. **Policy 19** requires the adoption of targets for all such environments (which in urban and peri-urban areas must be at least 10 per cent and in other areas is set by the regional council), and requires that restoration and reconstruction objectives are set regionally that prioritise ecosystem representation, threatened ecosystem types and land environments, species richness, connectivity and ecological restorations. Regional councils must also set a timeframe for achievement of the target and objectives. Enabling regional councils to set their own target will allow them to take into account the scale of the task and the level of resourcing available within the council and community to meet the target and objectives, and set a timeframe that is meaningful and achievable for their region. The BCG has elected not to set a target for land beyond the urban/peri-urban area, because the threshold advice we received was focussed primarily on cities and towns and their surroundings. However, the target-setting concept should apply more broadly, with regional councils and communities determining the appropriate target and timeframe.

While **Policy 19** is focussed on indigenous biodiversity depleted environments, **Policy 18** applies to SNAs and other areas that provide important connectivity or buffering functions. It requires that objectives are set for the enhancement of ecosystem function and ecological integrity of these areas. **Policy 19** implements **Objective 3.3** which is to restore and enhance the ecosystem function and ecological integrity of degraded Significant Natural Areas, and areas that provide important connectivity or buffering functions.

The **Policy 18 and 19** objectives are to be achieved through Regional Biodiversity Strategies. Under **Policy 17**, regional councils are required to prepare a Regional Biodiversity Strategy in conjunction with territorial authorities, tangata whenua and the community, which has as its purpose the promotion of a landscape-scale enhancement and restoration vision for the region's indigenous biodiversity. Detail as to the content of the Regional Biodiversity Strategy is provided through a suite of principles contained in **Appendix 5**. The BCG intends that preparation and adoption of a Regional Biodiversity Strategy is mandatory, but that the content of the Strategy is non-regulatory. This recognises that achievement of enhancement and restoration objectives will require a whole-of-community approach that must be incentivised and supported by local authorities but cannot be required of people. In that light, the Strategy is primarily about:

- aligning the community behind a shared vision and set of priorities
- ensuring that careful consideration is given to how enhancement actions will be supported or encouraged and resourced
- providing a place to consider how co-benefits from existing or proposed actions to achieve other objectives (such as freshwater management, carbon sequestration) can be used to also achieve biodiversity objectives.

Enhancement, restoration, reconstruction and active management actions are wide-ranging, including predator control, weed management, and planting and habitat construction. In addition to the direct benefits to indigenous biodiversity, these actions can foster a connection between people and nature and provide for the exercise of kaitiakitanga.

Climate change

The BCG received advice that climate change has the potential to destabilise indigenous species' distribution and abundance patterns while affecting the physical drivers of many habitats. Increasing ambient temperatures, greater climate extremes, more frequent storms and generally drier climates in eastern areas are predicted to modify biodiversity processes and patterns. Sea-level rise is already affecting the extent and character of coastal ecosystems and their species.

Although indigenous biodiversity has persisted through considerable environmental change in the past, these shifts in recent decades are having novel impacts, challenging the survival of species already compromised by other stresses. Fragmentation of populations and ecosystems may exacerbate declines associated with climate change. Increases in the diversity and abundance of plant and animal pests and diseases in response to expanding thermal envelopes will exacerbate threats for many indigenous species. The potential expansion of frequent fire regimes could destroy indigenous ecosystems, replacing them with more fire-tolerant and fire-prone habitats, largely occupied by introduced species. Storm events, particularly in tectonically active regions, will increase sediment loads in rivers, estuaries, and coastal marine ecosystems.



The effects of vegetation clearance are exacerbated by climate change.

Future biosecurity protocols will be challenged in a world characterised by increased global trade, warmer climates, and greater disturbance. Under this scenario, it is likely disease and pathogen incursions will increase, with potential spill-over effects for indigenous biodiversity. Failures in border biosecurity are inevitable, so a resilient indigenous biodiversity will depend on maintaining the full range of environments, populations, species, and ecosystems available.

Under the RMA, all persons exercising functions and powers are required to have particular regard to the effects of climate change (section 7(i)). Direction is lacking about how to achieve this as part of planning and decision-making in a sustainable management framework, and in particular what that means for indigenous biodiversity maintenance.

At a national level, the BCG was advised that the most effective strategies for sustaining indigenous biodiversity in the face of climate change are to:

- continue to reduce the pressure from mammalian and plant pests and pathogens
- protect and buffer remaining areas of ecosystems and habitats of indigenous species and restore them, especially in more modified landscapes
- ensure connectivity between ecosystems and habitats to enable migrations and allow ecosystem adjustment in order to provide for species to find viable niches as the climate changes.

Objective 3.4 is to reduce the vulnerability of indigenous biodiversity of New Zealand to the effects of climate change.

That objective is achieved by all of the NPSIB policies relating to effects management and enhancement of ecosystems, and many of the recommendations in the CSM Report will also assist. However, **Policy 3** is particularly relevant. It requires regional and district councils to adopt a precautionary approach to management of indigenous biodiversity potentially vulnerable to effects from climate changes so that natural adjustments to maintain the ecological integrity of ecosystems, habitats and species are allowed to occur, restoration and reconstruction activities will persist, pressure from pests and pathogens is reduced, and connectivity between ecosystems and habitats is retained.

4. Integrated and evidence-based management

In order to maintain and enhance indigenous biodiversity in New Zealand, it is necessary to underpin the management framework with appropriate information across land, freshwater and coastal-marine environments. Ideally, biodiversity data collected by one council should be comparable to data collected by another council and should be able to be collated to provide a national picture. Improved coordination of conservation effort on the ground is also critical if we are to achieve a step change in biodiversity management.

At present, there is a need to ensure government policies are better aligned across agencies to achieve (or at least not undermine) biodiversity benefits or co-benefits, and to ensure decisions on non-biodiversity specific activities do not inappropriately or inadvertently result in biodiversity loss or degradation. Compartmentalised decision-making by territorial and regional authorities in relation to indigenous biodiversity is an issue, as both local authorities have functions relating to indigenous biodiversity. The undesirable outcomes of compartmentalised decision-making include impacts of activities on biodiversity not being fully recognised or not being addressed effectively.

Environmental monitoring is another key component to enable us to better understand the environment and involves the collection of long-term data that informs us about the condition of our environment. The information collected allows us to assess whether our indigenous biodiversity is improving, remaining the same, or becoming degraded. Decision-makers, as well as researchers, need better access to a national picture of the state of our indigenous biodiversity. A comprehensive national picture will enable improved decision-making, more efficient operational processes, opportunities for increased collaboration between organisations and new research opportunities that will further inform policy development.

An opportunity therefore exists to:

1. support co-ordinated, strategic leadership of the biodiversity management system and the work of those engaged in conservation work on the ground
2. improve the scope and detail of information collected on the state of biodiversity and the pressures on it
3. achieve decision-making by those exercising functions under the RMA based on relevant and accurate information on the actual and potential effects of activities on biodiversity.

To achieve these outcomes, the NPSIB includes an objective on integrated and evidence-based management (**Objective 4**) and a number of policies that either strengthen the information base for management or support greater integration of management decisions. These policies include:

- **Policy 4**, requiring that section 6(c) SNAs be identified and mapped
- **Policy 13**, which directs regional councils and territorial authorities to work with tangata whenua to identify species, populations and ecosystems that are taonga
- **Policy 14**, provisions on surveys and maps of the likely presence of highly mobile indigenous fauna.

- **Policy 15**, which outlines information requirements when assessing environmental effects on indigenous biodiversity
- **Policy 17**, which directs the preparation of Regional Biodiversity Strategies, to promote a landscape-scale enhancement and restoration vision for a region's indigenous biodiversity and empower multiple stakeholders to contribute to that vision
- **Policy 19**, provisions on the identification of indigenous biodiversity depleted environments as foci for restoration and reconstruction.

A placeholder exists within the NPSIB for a specific policy on integrating decision-making (which the BCG did not have time to develop), the intent of which is to ensure that decision-making on aspects of activities that relate to district and regional functions occur holistically (**Policy 16**).

Within the CSM Report, there are also a number of sections that deal in some way with integrated, evidence-based management of biodiversity. These include topics relating to:

- Consistent and comprehensive monitoring and reporting
- The development of an inventory of wetlands, to record their extent, location and significant values in a systematic and standardised way
- The facilitation of co-ordinated, integrated local conservation efforts, through regional community conservation hubs
- Development of a national biodiversity database, to address data deficiency and a lack of interoperable data that can be used and re-used by decision-makers and communities
- Improved compliance monitoring and enforcement.

In addition to the above, the BCG recognises the importance of a consistent approach to prioritisation, noting that some prioritisation is inherently encompassed by the NPSIB (e.g., restoration policies). We note that future review of the National Biodiversity Strategy will provide an opportunity to consider prioritisation in more detail.

5. People and partnerships

Promoting sustainable management under section 5(2) of the RMA includes a mix of duties towards the natural environment and the socio-economic conditions of people and communities. Specifically, it includes ‘enabling people and communities to provide for their economic, social and cultural well-being...’ while providing for section 5(2)(a)–(c). This concept of sustainable management is achieved through **Objective 5** of the draft NPSIB.

The intent behind **Objective 5** is to recognise the need to provide for these ‘wellbeings’, as it is people and partnerships that will ultimately help us meet the goal of thriving biodiversity. A number of BCG presentations from those who work in the community ‘on the ground’ implored the Group to ensure the NPSIB does not ‘harm the good work going on out there’. The group attended two field trips, to Whakatāne (Omataroa forest) and Banks Peninsula, where we saw first-hand the important role people and partnerships play in improving biodiversity outcomes. **Objective 5** recognises that improved biodiversity outcomes will not be achieved without the critical link of empowering people.

A significant proportion of indigenous vegetation is on private land, and these owners respond better when they are respected and relationships are fostered. If they understand the issue (of declining biodiversity) they will care more about biodiversity and habitats on their land and



Biodiversity will not thrive without community efforts.

will be more likely to act to protect it. We received advice that land and business owners are best engaged in ways that recognise their individual circumstances; they may be at different stages of their lives, with differing priorities, expectations and abilities to resource the protection of biodiversity on their land. Regulation needs to be evidence-based, carefully focussed, certain, and clear, so that it does not lead to perverse outcomes.

An unnecessarily heavy focus on regulation may damage existing ‘buy-in and goodwill’ and unintentionally incentivise poor behaviour (such as landowners opting not to plant, manage, protect or restore indigenous vegetation).

Objective 5 recognises that there are sometimes conflicting values around existing and new activities and biodiversity. Express provision for existing use rights is key to implementing this objective. We recognise that generally, resource use and development is a key part of viable regional economies and communities in Aotearoa New Zealand.

As several presenters impressed upon us, you can enhance biodiversity within a ‘working landscape’. The BCG recognises the significant commitment that many landowners make to protecting and enhancing indigenous biodiversity on their own land.

The BCG acknowledges the need to adequately recognise the traditional relationship of Māori with Aotearoa New Zealand's indigenous biodiversity, including the need to acknowledge the role of tangata whenua as kaitiaki. These principles have been embraced by the NPSIB, both through the overarching Hutia Te Rito approach, and through **Policies 1 and 2**.

The first step in protecting SNAs is to ensure landowners with SNAs on their property are appropriately communicated with, kept informed, provided with guidance, and remain involved throughout the identification process whenever possible. Considerations to guide councils' approach to SNA identification processes are included in **Policy 4**.

Policy 7 establishes the need to provide for social, cultural and economic wellbeing within and outside of SNAs, with provision for existing activities being a cornerstone to this. This provision includes acceptance that the planting of vegetation within SNAs that is for a specific purpose, should be able to continue if consistent with that purpose. Similarly, **Policy 8** provides for replacement consents, with gains for biodiversity where feasible.

In reality, provision for people and partnerships goes beyond the NPSIB itself, and it is a key aspect of the CSM Report. For biodiversity to thrive, and to ensure gains are made through restoration and enhancement, more than regulation is required. The CSM Report recognises that many of the opportunities for maintaining and enhancing biodiversity will occur on private land. Maintaining and improving biodiversity requires both significant effort and investment and this cannot come from landowners alone. Organisations like Landcare Trust will be key in providing advice and technical support in rural communities. The QEII Trust also plays a critical role but needs additional funds to meet demand. Moreover, landowners need access to more engagement, education and assistance with active management, provided in a coordinated and integrated way. This must come through a package of 'support' tools and actions to accompany the NPSIB, and to ensure its objectives can be met.

6. Wetlands

Wetlands are hotspots for indigenous biodiversity. They are also critically important because of the ecosystem services they provide for the wider environment and for people, which include flood protection, improving water quality, and resilience to drought. The preservation of their natural character is a matter of national importance under the RMA and protecting the significant values of wetlands is an obligation under the NPSFM. Inclusion of both goals in the NPSIB recognises the significance of wetlands and ensures alignment with the RMA and NPSFM. New Zealand is also a signatory to the Ramsar Convention on Wetlands, under which it must promote the wise use and conservation of all wetlands, and designate wetlands for inclusion on the List of Wetlands of International Importance.

However, despite preservation and protection of wetlands being a goal under the RMA and NPSFM, wetlands continue to be lost as land-use intensifies in rural areas and urban land expands. Loss and damage has been so pervasive that today only 10 per cent of the historical extent of wetlands remain. In many areas that percentage is even less; in Hawke's Bay for instance only 2 per cent of wetlands remain.

A key reason for the loss of wetlands is that their location often overlaps with where people live and work and because, until recent decades, there has been a lack of understanding and appreciation of their importance. Another key reason is the lack of specific direction in the RMA and NPSFM in terms of how to achieve the objectives of protection and preservation. Defining the physical characteristics of wetlands, or a nationally consistent process and criteria for spatially defining the extent of wetlands, for example, is lacking (as recently noted by the Land and Water Forum in its 2018 report).¹⁶ This has resulted in regional inconsistency and disagreement in approaches to wetland identification and management.

The NPSIB is intended to address these issues. It focuses protection and preservation on wetlands that have retained ecological integrity, i.e., they have retained the indigenous vegetation, soil, and hydrological function that characterises wetlands. This is achieved through the use of the step-by-step wetland identification and delineation tool in **Appendix 3** which has been carefully developed with the help of experts to achieve that outcome.



View from Travis Wetland visitors' centre (Jon Sullivan).

¹⁶ Land and Water Forum advice on improving water quality: preventing degradation and addressing sediment and nitrogen, received May 2018.

The NPSIB recognises that in wetlands with ecological integrity (i.e., those identified using **Appendix 3**) will require protection. The NPSIB also provides direction on what those significant values are in terms of indigenous biodiversity, including that a wetland may also be identified as a section 6(c) RMA area of significant indigenous vegetation or habitat of indigenous fauna (in respect of which the NPSIB also provides direction). The BCG's intention is to avoid any further loss and degradation of wetlands with ecological integrity, an objective also expressed by the Land and Water Forum in its 2018 Report.¹⁷ Critically, this is not intended to disincentivise people from using wetlands as a natural method for achieving specific outcomes, such as sediment control or flood protection, or stop people from undertaking activities necessary for protection, such as fencing to keep stock out or crossings designed to get stock over without damage. For this reason, exceptions are included to make it clear that activities necessary for achieving the purpose for which a wetland was established, and those necessary for its protection, can occur.

Protecting the wetlands that are left is only one piece of the puzzle. Enhancing those that are degraded and reconstructing those that no longer retain ecological integrity are extremely important goals to promote if New Zealand is to increase the resilience and health of its natural environment. The group recognises that freshwater quality and quantity are managed under the National Policy Statement for Freshwater Management: accordingly Policy 12 (4) is intended to encourage non-regulatory responses to enhancement and reconstruction of wetlands.

¹⁷ Land and Water Forum advice on improving water quality: preventing degradation and addressing sediment and nitrogen, received May 2018.

Part 2: The Biodiversity Collaborative Group's Draft National Policy Statement for Indigenous Biodiversity

In this draft national policy statement [grey text] denotes that the provision is not agreed by all members of the Biodiversity Collaborative Group. The Background Report provides detail about the Group's various views on these grey texts. Text in *italics* denotes provisions that the BCG did not have time to fully develop. The Group anticipates that further work will be required to determine the nature of these provisions.

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Preamble

This national policy statement sets out objectives and policies to manage natural and physical resources so as to maintain indigenous **biological diversity** (**'biodiversity'**) under the Resource Management Act 1991.

Aotearoa New Zealand's **biodiversity** is in decline. An urgent nationally coordinated response is required to halt that decline and ensure native species, **habitats** and ecosystems can thrive. Addressing this decline is an issue for all New Zealanders.

Aotearoa New Zealand has a unique natural heritage. That heritage defines what it means to be a New Zealander. Our land is young and geologically unstable. It has been separated from other major land masses for some 80 million years. In this isolation and geological instability, a unique ecology evolved. We have high endemism (species found nowhere else) and, in the absence of land mammals, highly distinct and internationally significant ecosystems.

Yet in just 700 to 800 years, humans have wrought huge change through our use of land and other natural resources, and through our introduction (deliberate or otherwise) of exotic species that have become pests outside their natural environments.

As a consequence, many indigenous species and ecosystems have been lost and many that remain are now highly vulnerable. More will be lost unless we intervene to protect them from the many threats they face.

This national policy statement uses *Hutia Te Rito* as the framework to achieve the integrated and holistic well-being of the natural environment. This framework recognises that the health and well-being of our natural environment, its ecosystems and unique indigenous flora and fauna, are vital for the health and well-being of our land, fresh water, coast and marine environment, and communities.

Some of the most important ecosystems and **habitats** are found within Aotearoa New Zealand's large conservation estate. However, much of Aotearoa New Zealand's remaining **biodiversity** is on privately owned and managed land. Indeed, private land hosts many ecosystems that are poorly, if at all, represented within the public conservation estate. Hence private landowners have a vital role in meeting our national **biodiversity** objectives, and partnerships between those landowners, their communities and public agencies will be critical to success.

Achieving the purpose of this national policy statement will involve retaining as many of our remaining species, populations, **habitats** and ecosystems as we possibly can, placing value not only on the pristine, but also on the more modified and degraded ecosystems that make an important contribution to maintaining **biodiversity**. We must recognise the importance of species and ecosystems that are locally rare but nationally abundant, as well as those that are locally abundant but nationally rare. Similarly, maintaining indigenous **biodiversity** will require retention of species across their natural range.

Yet stopping loss and arresting degradation will not in itself be sufficient. Maintaining **biodiversity** long-term will also involve taking positive steps to more effectively manage the ongoing and pervasive threats from plant and animal pests, as well as the emerging threat of

climate change. It will also often necessitate enhancement of remaining ecosystems and even **reconstruction** of indigenous cover in the most modified environments.

While it is important to identify and protect **significant natural areas**, it is also important to understand that informed and sympathetic management is required of all New Zealanders across the landscape - not just in defined **significant natural areas**. This includes a concern for highly mobile fauna that do not necessarily limit themselves to areas easily defined on maps.

As a signatory to the Convention on Biological Diversity, New Zealand has committed to the conservation of **biodiversity**, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources, including by appropriate access to genetic resources and by appropriate transfer of relevant technologies, taking into account all rights over those resources and to technologies, and by appropriate funding. Aotearoa New Zealand is also a signatory to the Ramsar Convention on Wetlands. This national policy statement is an important part of New Zealand's response to meeting those international obligations.

Regional and district councils have a statutory function under the Resource Management Act 1991 to maintain **biodiversity** and that is complemented by Part 2 principles including the need to:

- Safeguard the life-supporting capacity of ecosystems
- Protect significant **indigenous vegetation** and significant **habitat** of indigenous fauna
- Provide for the relationship of Māori and their culture and traditions with their taonga
- Have particular regard to kaitiakitanga, and the ethic of stewardship
- Take into account the principles of Te Tiriti o Waitangi

This national policy statement states objectives and policies for those matters of national significance. It does so while recognising the traditional relationship of Māori with Aotearoa New Zealand's indigenous **biodiversity**. It acknowledges the role that Māori have as kaitiaki in all aspects of **biodiversity** management. Recognising those relationships will assist in developing stronger working relationships between Māori and the Crown.

While this national policy statement supports the existing good work of local authorities and looks to secure the gains already made in terms of regional and local planning responses, it seeks a step change in management recognising the opportunity before us to secure the distinct identity of Aotearoa New Zealand for generations to come.

Review

This will include a statement on the date this national policy statement is to be reviewed by central government.

Scope of National Policy Statement for Indigenous Biodiversity

Biodiversity is relevant to the terrestrial, freshwater and marine domains. The application of this national policy statement to each of those domains is as follows:

Terrestrial domain

This national policy statement applies to all land regardless of tenure.

Freshwater domain

This national policy statement does not apply to fresh water other than provisions relating to wetlands. In relation to wetlands this national policy statement does not deal with water quantity or quality. It applies to the banks or beds of rivers to the extent that they support terrestrial ecology.

The application of this national policy statement to freshwater is to be reviewed by the Ministry for the Environment prior to notification.

Marine domain

Provisions of this national policy statement relating to identification of **significant natural areas** apply to the coastal marine area. This national policy statement does not otherwise apply to the coastal marine area.

Hutia Te Rito

Hutia te rito o te harakeke	When the centre of the flax bush is picked
Kei hea te Kōmako, e kō?	Where will the bellbird sing?
Kī mai ki ahau	You ask me
He aha te mea nui o te ao?	What is the greatest thing in the world?
Māku e kī atu	My reply is
he tangata, he tangata, he tangata	It is people, it is people, it is people

This whakataukī recognises the impact people have on our natural environment and its survival; our actions can determine whether it is destroyed or degraded or whether it thrives. This requires recognition of the interconnected and whakapapa (familial) relationship between the natural environment and communities; people are part of and dependent upon the natural environment and its ecosystems.

In this national policy statement, Hutia Te Rito provides a framework to achieve the integrated and holistic well-being of the natural environment. It recognises that the health and well-being of our natural environment, its ecosystems and unique indigenous flora and fauna, is vital for the health and well-being of our land, our fresh water, our coast, our marine environment, and our communities.

Upholding Hutia Te Rito acknowledges and protects the mauri (life force) of our indigenous **biodiversity**. This requires that in using the natural environment and its resources and providing for te hauora o te tangata (the health of the people), we have a responsibility to provide for the te hauora o te koiora (the health of indigenous **biodiversity**), te hauora o ngā taonga (the health of taonga species and ecosystems) and te hauora o te Taiao (the health of the wider environment). Resource use and development which degrades the mauri and hauora of our indigenous **biodiversity** will also degrade the hauora of our people.

Hutia Te Rito incorporates the values of tangata whenua and the wider community in relation to indigenous **biodiversity** and the natural environment. The engagement promoted by Hutia Te Rito will help regional and district councils to develop meaningful, tailored responses to maintaining and enhancing indigenous **biodiversity** that work within their region.

By recognising and providing for Hutia Te Rito as the framework for managing indigenous biodiversity, it is intended that the health and well-being of indigenous **biodiversity** is front of mind in decision-making about the natural environment, including the identification and protection of **significant natural areas** and of taonga, restoring and enhancing depleted ecosystems as part of achieving landscape-scale ecosystem **restoration**, and halting the decline of our indigenous **biodiversity** to ensure it is maintained for the health, enjoyment and use of and by all New Zealanders now and for future generations.

Interpretation

Terms defined in the Resource Management Act 1991 and used in this national policy statement have the meaning given in the Act.

Where the following terms defined in this interpretation section are used in this national policy statement they are denoted in bold.

In this national policy statement:

“At risk or threatened species” means those species accorded the status of “At Risk” or “Threatened” using the New Zealand Threat Classification System and which are listed as having that status by the Department of Conservation.

“Biodiversity” has the same meaning as “biological diversity” as defined in the Resource Management Act 1991.

“Biodiversity compensation” means positive measurable outcomes for indigenous biodiversity resulting from actions designed to counter any [significant] residual adverse effects of a subdivision, use or development on indigenous biodiversity values after application of appropriate avoidance, remediation and mitigation measures, [where the overall result is no net loss of impacted ecological values], including measures to continue or extend existing biodiversity-related actions.

“Biodiversity offset” means an action to achieve a positive measurable outcome for biodiversity that adheres to the principles in Appendix 4.

“Bonus development rights” are rights to, or to seek resource consent to, subdivide land, or use or develop a natural or physical resource on a landholding, conditional upon a specific biodiversity enhancement or **restoration** action being undertaken, where that right is expressly provided for in the relevant regional or district plan and provided it is exercised on the same landholding as that where the biodiversity enhancement or **restoration** action occurs.

“Ecological district” means the ecological districts as shown in McEwen, W. M. (ed.), 1987. *Ecological regions and districts of New Zealand*. Wellington: Department of Conservation.

“Ecological integrity” means the ability of an ecosystem to support and maintain its composition, structure and function, where:

- composition means the natural diversity of indigenous species, **habitats** and communities
- structure means the physical features (biotic and abiotic)
- function means the ecological and physical processes.

“Ecological reconstruction” means re-introducing and maintaining appropriate biota to re-create an ecosystem that would not regenerate or recolonise even with best practice **restoration** interventions. **Reconstruction** has the corresponding meaning.

“Ecological restoration” is the process of assisting the recovery of an ecosystem that has been degraded, damaged or otherwise lost as a result of human activity. **Restoration** has the corresponding meaning.

“Ecosystem function” is the property of an ecosystem that occurs where that ecosystem retains ecological integrity allowing it to undertake its natural processes. **Ecosystem functioning** has a corresponding meaning.

“Ecosystem services” are the benefits obtained from ecosystems. These include:

- Supporting services (e.g., nutrient cycling, soil formation, **habitat** creation)
- Provisioning services (e.g., food, fresh water, wood, fibre, fuel)
- Regulating services (e.g., water purification, climate regulation, flood regulation, disease regulation)
- Cultural services (e.g., aesthetic, spiritual, educational, recreational).

“Functional need” means the need for a proposal or activity to traverse, locate or operate in a particular environment because the activity can only occur in that environment.

“Habitat” means the area or environment where an organism or ecological community lives or occurs naturally for some or all of its life cycle or as part of its seasonal feeding or breeding pattern.

“Indigenous biodiversity depleted environment” means any urban, peri-urban, or other heavily modified area where remaining indigenous cover is below 10 per cent.

“Indigenous vegetation” means vascular and non-vascular plants that are native to the ecological district or marine biogeographic region.

“Land Environment” is a land environment as identified by the Land Environment New Zealand terrestrial environment classification system, (Leathwick et al., 2003, as maintained by Landcare Research).

“Maintenance and upgrading of activities and structures” means works required for the continued safe and efficient operation of an activity or structure, or upgrades to those activities or structures where the activity or structure was lawfully existing as at the date of gazettal of the national policy statement or is an activity or structure approved (or otherwise lawfully established) in accordance with a plan after gazettal of the national policy statement.

“Māori land” means Māori customary land and Māori freehold land as defined in Te Ture Whenua Māori Act 1993.

“Marine biogeographic area” means an area that is defined according to patterns of ecological and physical characteristics in the seascape.

“Natural range”, in relation to species, refers to the geographical area within which that species can be expected to be found naturally (without human intervention).

“Operational need” means the need to traverse, locate or operate in a particular environment because of technical, logistical or operational characteristics.

“Peri-urban area” in relation to identification of **indigenous biodiversity depleted environments**, means an area immediately adjoining any urban area which has a mixed rural and urban character.

“Significant natural area” means:

- an area identified in accordance with Policy 4; or
- prior to complete implementation of Policy 4 includes an area identified in an operative regional or district plan or regional policy statement as a **significant natural area** or an area that has been identified as a **significant natural area** in accordance with Appendix One through an assessment undertaken as part of a resource consent application.

“Subdivision, use and development” means any activity that is controlled by sections 9, 11, 12, 13, 14 or 15 of the Resource Management Act 1991 and includes maintenance and upgrading of activities and structures.

“Transferable development rights” are rights to, or to seek resource consent to, subdivide land, or use or develop a natural or physical resource within a recipient area, conditional upon a specific biodiversity enhancement or **restoration** action being undertaken within a donor area where the recipient area, donor area and specific action are all specified in the relevant regional or district plan.

“Urban area” in relation to identification of **indigenous biodiversity depleted environments**, means an area of land containing or intending to contain a concentrated settlement of 10,000 people or more and any associated business land, irrespective of local authority or statistical boundaries.

Objectives

Objective 1: Hutia Te Rito

1. To recognise and provide for Hutia Te Rito in managing te Taiao.

Objective 2: Te Tiriti o Waitangi

1. To take into account the principles of Te Tiriti o Waitangi by:
 - a) Recognising the role of tangata whenua as kaitiaki;
 - b) Providing for tangata whenua involvement in the management of indigenous **biodiversity** by:
 - i. supporting the ongoing and enduring relationship of tangata whenua over their lands, waters, rohe, and resources;
 - ii. building meaningful relationships and partnerships between tangata whenua and persons exercising functions and powers under the RMA;
 - iii. incorporating mātauranga Māori and tikanga Māori into indigenous **biodiversity** decision-making and management;
 - iv. identifying and protecting the values of indigenous species and ecosystems that are taonga to tangata whenua; and
 - v. recognising that only tangata whenua can identify and demonstrate their relationships and that of their culture and traditions with their ancestral lands, water, sites, waahi tapu and taonga.

Objective 3: Maintaining indigenous biodiversity and enhancing ecosystems

1. To maintain the indigenous **biodiversity** of New Zealand such that there is no reduction in the following ecological attributes from their state at the gazettal of this national policy statement:
 - a) Species occupancy across their **natural range**;
 - b) Indigenous character – to maintain the attributes of ecosystems and **habitats**;
 - c) Ecosystem representation – to maintain a full range of ecosystems and **habitats**;
 - d) Ecosystem connectivity, buffering, resilience, and adaptability – to mitigate vulnerabilities across the landscape;By:
 - i. identifying and protecting areas of significant **indigenous vegetation** and significant **habitats** of indigenous fauna;
 - ii. safeguarding the life supporting capacity of ecosystems and their **biodiversity**, functioning and adaptability;
2. To enhance the sustainability of **indigenous biodiversity depleted environments** through the **restoration** and **reconstruction** of a representative range of **indigenous vegetation** and **habitats**.

3. To restore and enhance the **ecosystem function** and **ecological integrity** of degraded **significant natural areas**, and areas that provide important connectivity or buffering functions.
4. To reduce the vulnerability of indigenous **biodiversity** of New Zealand to the effects from climate change.

Objective 4: Integrated and evidence-based management

1. To improve the integrated management of New Zealand's land, fresh water and coastal environments to promote the objectives of this national policy statement, including the coordination and alignment within and across local authority boundaries, between central government, regional councils and territorial authorities, and between methods (including non-regulatory methods and methods under other legislation).
2. To improve the scope and detail of information collected on the state of indigenous **biodiversity** and on the pressures on **ecological integrity** and **ecosystem functioning**.
3. To achieve decision-making by those exercising functions under the Resource Management Act 1991 that is based on suitable information on the actual and potential effects of existing and proposed activities on **biodiversity** and on the actual and potential effect of existing and proposed activities on the promotion of the objectives of this national policy statement.

Objective 5: People and partnerships

1. To enable people and communities to provide for their social, economic, and cultural wellbeing and their health and safety, through subdivision, use, and development, while recognising:
 - a) The need for resource use and development to occur within appropriate constraints to promote the objectives of this national policy statement;
 - b) That people are critical to the maintenance and **restoration** of indigenous **biodiversity** and the importance of respecting and fostering the contribution of landowners as stewards/kaitiaki of their land;
 - c) That active management is often necessary to protect **indigenous vegetation** and fauna from non-anthropogenic threats and the importance of forming partnerships with people and communities to support and encourage such management;
 - d) The value of supporting people and communities in their understanding of, connection to, and enjoyment of nature; and
 - e) That the protection of indigenous **biodiversity** and taonga contributes to the social, economic and cultural wellbeing of people and communities.

Objective 6: Wetlands

1. To protect wetlands and their significant values, and encourage wetland **restoration** and **reconstruction**.

Policies

Policy 1: Hutia Te Rito

1. When preparing regional policy statements and plans, every regional council and territorial authority shall recognise and provide for Hutia Te Rito noting that:
 - a) Hutia Te Rito recognises the broader connections between:
 - i. te hauora o te koiora (the health of indigenous **biodiversity**);
 - ii. te hauora o te Taiao (the health of the wider environment);
 - iii. te hauora o te tangata (the health of the people).
 - b) Maintenance and enhancement of mauri is achieved through kaitiakitanga and stewardship.

Policy 2: Tangata whenua as kaitiaki

1. By every regional council and territorial authority:
 - a) Involving tangata whenua in the preparation of regional policy statements, regional and district plans, and regional biodiversity strategies by:
 - i. undertaking early, effective consultation, that is in accordance with tikanga Māori as far as practicable;
 - ii. working with tangata whenua to:
 - identify indigenous species and ecosystems that are taonga in accordance with Policy 13, and develop objectives, policies, and methods to protect values of identified taonga, recognising that tangata whenua have the right to choose not to identify taonga;
 - develop objectives, policies, and methods to recognise and provide for Hutia Te Rito;
 - incorporate mātauranga Māori and tikanga Māori into indigenous **biodiversity** decision-making and management in policy statement, plans, effects assessments of resource consents and notices of requirement where appropriate, and environmental monitoring.
 - b) Taking all reasonable steps to:
 - i. provide for tangata whenua to exercise kaitiakitanga over indigenous **biodiversity** and ecosystems, in particular taonga, identified in accordance with Policy 13;
 - ii. provide opportunities for tangata whenua involvement in decision-making on regional policy statements, plans, notices of requirement, and resource consents;
 - iii. provide opportunities for sustainable customary use and take.

Policy 3: Consideration of climate change

1. By every regional council and territorial authority adopting a precautionary approach to the management of indigenous **biodiversity** that is potentially vulnerable to effects from climate change so that:
 - a) Natural adjustments to maintain **ecological integrity** of ecosystems, **habitats**, and species are allowed to occur;
 - b) **Restoration** and **reconstruction** activities will persist;
 - c) Pressure from mammalian and plant pests and pathogens is reduced;
 - d) Connectivity between ecosystems and **habitats** remains to enable migrations and allow ecosystem adjustment in order to provide for species to find viable niches as the climate changes.

Policy 4: Identification of significant natural areas

1. By every territorial authority applying the criteria set out in Appendix 1 to assess all areas of **indigenous vegetation** and **habitat** of indigenous fauna within its district to determine its ecological significance.
2. By every regional council applying the criteria set out in Appendix 1 to assess the ecological significance of the whole of the coastal marine area within its region.
3. By territorial authorities and regional councils considering the following matters at all relevant points in the assessment process:
 - a) Partnership – councils should seek to engage with landowners and share information about **biodiversity** values, potential management options, and support and incentives that may be available.
 - b) Transparency – councils should clearly inform landowners about how information gathered will be used, making existing information, draft assessments and other relevant information available to the relevant landowners for review.
 - c) Quality – wherever practicable, the values and extent of **significant natural areas** assessed as potentially meeting the Appendix 1 criteria should be verified by physical inspection unless the council and landowner are satisfied with a desktop approach.
 - d) Access – where permission to access a property on a voluntary basis is not provided, councils should first rely on a desktop assessment. Powers of entry under section 333 of the RMA should be used as a last resort.
 - e) Equity – **significant natural area** identification should be based on the presence of **biodiversity** attributes, identified through the consistent and tenure-neutral application of the criteria set out in Appendix 1.
4. By territorial authorities and regional councils:
 - a) Preparing a schedule itemising each **significant natural area** and the attributes associated with each area with reference to the criteria of Appendix 1;
 - b) Mapping each area scheduled in accordance with Policy 4 a); and
 - c) Making or changing district plans and regional plans to identify **significant natural areas**.

[Policy 5: Precautionary approach]

1. By every regional council and territorial authority adopting a precautionary approach towards proposed activities with effects on indigenous biodiversity and ecosystems that are uncertain, unknown, or little understood, but potentially significantly adverse.]

Policy 6: Managing effects within a significant natural area

1. By every regional council and territorial authority ensuring that any **subdivision, use and development** within a **significant natural area**:
 - a) Avoids:
 - i. fragmentation;
 - ii. loss of extent;
 - iii. disruption to sequences, mosaics, or processes;
 - iv. loss of buffering or connectivity within and between ecosystems;
 - v. a reduction in population size of any **at risk or threatened species**.
 - b) Protects **ecological integrity** of **significant natural areas**, including by also managing the following adverse effects:
 - i. degradation of mauri;
 - ii. degradation of the quality of an ecosystem, or a reduction in the natural diversity of vegetation communities or species' **habitats**, or a reduction in a **habitat's** species richness or viability;
 - iii. pest plant or animal incursions, and changes that result in increased risk of such incursions;
 - iv. disruption to indigenous fauna by people, their pets or livestock, and changes that increase the risk of that disruption;
 - v. a reduction in people's ability to connect with and benefit from nature, including:
 - historical, cultural or spiritual relationships of mana whenua with their taonga;
 - scientific, educational, amenity, historical, cultural, landscape or natural character values of **indigenous vegetation** or **habitat** of indigenous fauna;
 - **ecosystem services**.
 - vi. cumulative adverse effects on ecosystems.

Policy 7: Providing for social, cultural and economic wellbeing

1. Despite Policy 6, every regional council and territorial authority must provide for:
 - a) Existing activities in accordance with Policy 9;
 - b) Use and development for the purpose of protecting or enhancing a **significant natural area**;

- c) Use and development that addresses an immediate risk to public health or safety;
- d) Replacement consents in accordance with Policy 8;
- e) Where the **indigenous vegetation** or **habitat** was established for a purpose other than the maintenance or enhancement of indigenous **biodiversity**, activities that are necessary for that purpose to be met must be provided for when managing effects;
- f) Plantation forestry activities within a plantation forest that are not provided for by the Resource Management (National Environmental Standard on Plantation Forestry) Regulations 2018;
- g) The adverse effects of the **subdivision, use and development** within a **significant natural area** on attributes assessed as medium value in accordance with Appendix 2 to be avoided, remedied, mitigated, offset or compensated where:

- i. the **subdivision, use and development** is associated with either:

- nationally important infrastructure;
- mineral and aggregate extraction that is essential to provide a domestic supply for New Zealand's mineral or aggregate needs;
- the provision of papakāinga, marae and ancillary community facilities and associated customary activities on **Māori land**; and

the activity is locationally constrained because it has a **functional or operational need** to operate in a particular location and there are no practicable alternative locations for the activity that would provide for its **functional or operational needs** to be met; or

- ii. the use and development is a single dwelling on an allotment created before the date of gazettal of this national policy statement and there is no location within the existing allotment where a single residential dwelling and essential associated on-site infrastructure can be constructed in a manner that avoids the adverse effects specified in Policy 6;

h) the adverse effects of the subdivision, use and development within a **significant natural area** that supports attributes assessed as having high value to be avoided where practicable, or otherwise remedied, mitigated, offset, or compensated where:

- i. The subdivision, use and development comprises, or relates to an activity that is locationally constrained because it has a functional or operational need to operate in a particular location and there are no practicable alternative locations for the activity that would provide for its functional or operational needs to be met, and,

- ii. It is an activity that would promote recognition of a matter of national significance as specified in any national policy statement set out in another national policy statement:

- The National Policy Statement for Renewable Electricity Generation);
- The National Policy Statement on Electricity Transmission));

- i) despite Policy 6, where activities referred to in a (ii) are undertaken in an identified geothermal system and have an adverse effect on an significant

natural area comprising indigenous species and habitats that have a geothermal association, such activities shall be managed so as to:

- i. remedy, mitigate, offset or compensate for significant adverse effects on such species and habitats in geothermal systems classified as 'Development' in a regional policy statement or plan.
- ii. avoid where practicable, or otherwise remedy, mitigate, offset or compensate for significant adverse effects on such species and habitats in geothermal systems classified as 'Conditional Development' in a regional policy statement or plan.
- iii. avoid significant adverse effects on such species and habitats in geothermal systems classified as 'Limited Development' in a regional policy statement or plan, and remedy, mitigate, offset or compensate any other adverse effects.

2. Despite Policy 6, where an area of production forest is identified as a **significant natural area** the effects of plantation forest activities (other than afforestation) on the **significant natural area** are to be managed in accordance with the Resource Management (National Environmental Standard on Plantation Forestry) Regulations 2018.

Policy 8: Replacement consents

1. When an application is made for resource consent for subdivision, use and development associated with:
 - a) An activity affected by section 124 of the Resource Management Act 1991; and
 - b) It is not feasible that the activity and its effects will cease to continue at the expiry of the existing consent,

that application shall be assessed, and conditions imposed, to give effect to Policy 6 or Policy 7 (as is relevant) except that adverse effects on **biodiversity** resulting from that activity, which have occurred in a more or less continuous manner since that activity was first lawfully established, need not be avoided, provided reasonable steps are taken to mitigate those effects as far as practicable in the circumstances.

Policy 9: Existing activities

1. In respect of **subdivision, use, and development** that was lawfully established as at the date of gazettal of this national policy statement:
 - a) Section 10 and section 20A of the Resource Management Act 1991 apply according to their terms;
 - b) Regional councils must provide direction in regional policy statements on the management of adverse effects of those activities which ensures that the activities do not compromise the achievement of the objectives of this national policy statement, while recognising the social, cultural and economic wellbeing that the activities provide;
 - c) Except as required by b) above, regional policy statements and plans should provide for those activities to continue, provided that:
 - i. the adverse effects of the activity are no greater in character, intensity, and scale; and

- ii. if the activity takes place within a **significant natural area**, it will not lead to loss of **ecological integrity** or degradation of the attributes for which the **significant natural area** was identified.
- d) Regional councils and territorial authorities must provide for use and development for the purpose of **maintenance and upgrading of activities and structures** where the adverse effects of the activity or structure on **ecological integrity** are no greater in terms of character, intensity or scale;
- e) Policy 8 applies to replacement resource consents rather than this policy.
- f) Where indigenous vegetation or habitat has naturally re-established within improved pasture, activities necessary for that improved pasture to be maintained for animal grazing purposes must be provided for when managing effects, except that, where improved pasture is within a **significant natural area** the clearance of indigenous vegetation shall avoid the loss of **ecological integrity** of the **significant natural area**.

Policy 10: Providing for Māori cultural activities and Māori land

1. In addition to the circumstances specified in Policy 7, regional councils and territorial authorities must, when preparing regional policy statements and plans, have regard to:
 - a) Opportunities for the development of **Māori land** and the associated potential to enhance the social, cultural and economic wellbeing of Māori; and
 - b) The benefits of providing for papakāinga, marae and ancillary community facilities and associated customary activities on **Māori land**; and
 - c) Opportunities to provide planning incentives, including **transferable development rights**, that recognise the opportunity costs associated with protecting **biodiversity** on **Māori land**.

Policy 11: Managing effects outside significant natural areas

1. Without limiting Policies 7, 8, and 9, by regional councils and territorial authorities recognising that maintaining **biodiversity** requires more than protecting **significant natural areas** and providing across regions and districts for:
 - a) Control of cumulative adverse effects to ensure there is no reduction in:
 - i. Species occupancy across their **natural range**.
 - ii. Indigenous character – to maintain the attributes of ecosystems and **habitats**.
 - iii. Ecosystem representation – to maintain a full range of ecosystems and **habitats**.
 - iv. Ecosystem connectivity linking, buffering, resilience, and adaptability – to mitigate vulnerabilities across the landscape;
 - b) Control of pest plants or animals;
 - c) Opportunities to incentivise **restoration** or enhancement of areas that provide important connectivity or buffering functions and of **indigenous biodiversity depleted environments**;
 - d) *The BCG considers that a provision relating to subdivision may be appropriate within this policy.*

Policy 12: Protecting and enhancing wetlands

1. When preparing relevant regional plans regional councils must:
 - a) Identify wetlands within their region which retain **ecological integrity** in accordance with Appendix 3.
 - b) Recognise that all wetlands identified in accordance with Appendix 3 exhibit significant values, which may include but are not limited to:
 - i. presence of indigenous wetland vegetation;
 - ii. providing **habitat** for indigenous wetland fauna;
 - iii. provision of wetland **ecosystem services**;
 - iv. connectivity between terrestrial and aquatic (marine and freshwater) ecosystems;
 - v. cultural value as taonga in accordance with Policy 13;
 - vi. significant value in accordance with Policy 4.
2. Avoid loss or degradation of any wetland or part of any wetland identified in accordance with Policy 12 1a) above and Appendix 3, or any wetland identified in accordance with Appendix 3 through an assessment undertaken as part of a resource consent application.
3. Provide for activities that are necessary for:
 - a) The intended purpose of the wetland to be met where that wetland was established for a purpose other than the maintenance or enhancement of indigenous **biodiversity**.
 - b) The protection of the wetland.
4. Regional councils must include in regional plans provisions (including, in particular, non-regulatory methods) that promote, and where possible, incentivise:
 - a) The enhancement of wetlands in which **ecological integrity**, presence of indigenous wetland vegetation, or indigenous wetland fauna **habitat** viability are degraded; and
 - b) The **reconstruction** of areas of historical wetlands which no longer retain **ecological integrity**, **indigenous vegetation**, or provide **habitat** for indigenous fauna, where **reconstruction** is likely to result in those values being regained.

Policy x: Freshwater and biodiversity

Explanatory comment only

The need for, and content of, a policy in relation to the biodiversity of freshwater bodies should be revisited by the Ministry for the Environment in accordance with the BCG's recommendations as set out in the Covering Report.

Policy 13: Managing Taonga

1. Regional council and territorial authorities together shall work with tangata whenua to identify species, populations and ecosystems that are taonga by:

- a) Describing and mapping the taonga and its values; or
 - b) Describing the taonga and its values.
2. Effects on identified taonga are to be addressed by:
- a) Avoiding adverse effects as specified under Policy 6 where an identified taonga is also a **significant natural area** or within a **significant natural area**;
 - b) Otherwise managing adverse effects as necessary to protect identified taonga and their values; and
 - c) Considering opportunities for sustainable customary take and use in a manner that is consistent with taonga protection.

Policy 14: Protecting highly mobile indigenous fauna

1. In order to protect indigenous fauna species that:
- a) Are highly mobile;
 - b) Are likely to depend on **habitat** beyond identified **significant natural areas**;
 - c) Are at risk or threatened species; and
 - d) Whose presence in the environment may be difficult to detect;
- every regional council and territorial authority shall collaborate to:
- e) Where practicable, undertake region-wide surveys or use existing information to indicate the likely presence or absence of the highly mobile indigenous fauna, and include maps in regional and district plans of areas of likely presence where this will assist their protection;
 - f) Provide information about these species and their **habitat** requirements to people and communities, and encourage actions to protect them, including working to develop best practice; and
 - g) Ensure that any activities within areas of likely presence that may adversely affect these species are managed by incorporating policies and methods in regional and district plans to avoid, remedy, or mitigate adverse effects on these species and their **habitat** as necessary to protect viable populations of these species across their **natural range**.
2. An area identified in accordance with this policy is not a **significant natural area**, unless the area also meets the criteria in Appendix 1.

Policy 15: Assessing environmental effects on indigenous biodiversity

1. Regional councils and territorial authorities must ensure an assessment of environmental effects provided in association with any resource consent:
- a) In accordance with Schedule 4 clause 1, is specified in sufficient detail to satisfy the purpose for which it is required.

- b) In accordance with Schedule 4 clause 3 includes such detail as corresponds with the scale and significance of the effects that the activity may have on the environment.
- 2. In providing a description of the site at which the activity is to occur in accordance with Schedule 4 clause 2(b), consideration must be given to identification, where relevant, of:
 - a) **Significant natural areas** and other **indigenous vegetation** or **habitat** of indigenous fauna.
 - b) Where the site is within an area of likely presence of highly mobile fauna identified in accordance with Policy 14, the use of the site by relevant fauna species.
 - c) The site's role in maintaining connections between the indigenous **biodiversity** of the site and the wider ecosystem.
- 3. In assessing any effects in accordance with Schedule 4 clause 7(c), address where relevant:
 - a) Any effects on:
 - i. **significant natural areas** and other **indigenous vegetation** or **habitat** of indigenous fauna.
 - ii. highly mobile fauna within identified areas of likely presence.
 - b) Measures to avoid, remedy, mitigate, offset or compensate for adverse effects, including:
 - i. if remediation is proposed, sufficient information to enable an assessment of the likelihood of success of remediation measures;
 - ii. if a **biodiversity offset** is proposed, sufficient information to demonstrate compliance with Appendix 3;
 - iii. if **biodiversity compensation** is proposed, sufficient information to demonstrate its intended outcomes;
 - iv. how those outcomes are intended to be secured; and
 - v. an assessment of residual adverse effects that takes into account the likelihood of success of remediation or **biodiversity offset** or **biodiversity compensation** measures.
- 4. In assessing any effects in accordance with Schedule 4 clause 7(d), address, where relevant, effects on identified taonga, **ecosystem services**, and the site's role in maintaining the mauri of the site and the wider ecosystem.
- 5. Use methodology consistent with best practice for the ecosystem type or types present. Consider including a mātauranga Māori and tikanga Māori assessment methodology where relevant, in particular in respect of identified taonga.

Policy 16: Integrating decision-making

Explanatory comment only

The issue this policy seeks to address is compartmentalised decision-making by territorial and regional authorities in relation to indigenous biodiversity. The issue arises because both local

authorities have functions relating to indigenous biodiversity. The undesirable outcomes of compartmentalised decision-making include:

- *impacts of activities on biodiversity not being fully recognised, or not being addressed effectively.*
- *additional costs and unexpected outcomes for applicants who believe they have all necessary approvals.*

The intent of this policy is to ensure that decision-making on aspects of activities that relate to district and regional functions occurs holistically, by:

- *Requiring that where activities will require consent from another local authority, this is identified when an application for consent is lodged*
- *Encouraging contemporaneous applications to both authorities*
- *Ensuring that when consent authorities are considering whether to hold a joint hearing in accordance with section 102, they have particular regard to combined effect of the required resource consents on indigenous species, habitats and ecosystems.*

Policy 17: Enhancing and restoring through regional biodiversity strategies

1. By every regional council preparing, in conjunction with territorial authorities, tangata whenua and the community, a regional biodiversity strategy that:
 - a) Has as its purpose the promotion of a landscape-scale enhancement and **restoration** vision for the region's indigenous **biodiversity**.
 - b) Addresses the principles set out in Appendix 4.

Policy 18: Maintenance, enhancement and restoration of significant natural areas, connectivity, and buffering

1. By regional councils and territorial authorities promoting the maintenance, enhancement and **restoration** of **significant natural areas**, and other areas that provide important connectivity or buffering functions, including in the following ways:
 - a) Including objectives for the enhancement of **ecosystem function** and **ecological integrity** of degraded **significant natural areas**, and other areas that provide important connectivity or buffering functions in regional and district plans.
 - b) Specifying in a regional biodiversity strategy actions to achieve those objectives.
 - c) Ensuring policies and methods in regional and district plans promote voluntary **restoration** or **reconstruction** actions.

Policy 19: Restoring indigenous biodiversity depleted environments

1. By every regional council in a relevant regional plan, identifying as **indigenous biodiversity depleted environments** any **urban**, **peri-urban**, and other heavily modified areas within a region where remaining indigenous cover is below 10 per cent.
2. For all **indigenous biodiversity depleted environments**, identified in accordance with Policy 19(1), establish in regional plans:
 - a) A target for indigenous cover, which in **urban areas** and **peri-urban areas** must be at least 10 per cent.
 - b) **Restoration** and **reconstruction** objectives for indigenous cover that prioritise:
 - i. representation of ecosystems naturally and formerly present, in particular nationally threatened ecosystem types and **indigenous vegetation** in threatened land environments;
 - ii. species richness;
 - iii. connectivity between, and buffering of, existing **habitats**; and
 - iv. **ecological restoration** at a landscape scale across the region.
 - c) Timeframes for achieving the indigenous cover target and **restoration** and **reconstruction** objectives.
3. Specify in each regional biodiversity strategy, actions to achieve the objectives of the relevant regional plan established in accordance with Policy 19(2)(b).

Policy 20: Restoring and enhancing through transferable development rights

1. By regional councils and territorial authorities considering the use of **transferable development rights**, in preference to **bonus development rights**, where necessary and appropriate to:
 - a) Promote the **restoration** and enhancement of:
 - i. **significant natural areas** identified in accordance with Policy 4; and
 - ii. **ecological integrity** in the areas identified in a regional biodiversity strategy prepared in accordance with Policy 17; and/or
2. To ensure that **transferable development rights** contribute effectively to the objectives of this national policy statement, regional councils and territorial authorities will:
 - a) Require that the enhancement and **restoration** required to qualify for the creation of a **transferable development right**:
 - i. is designed by an suitably qualified ecologist;
 - ii. uses eco-sourced plant material where practicable; and
 - iii. is of a scale that makes a meaningful and enduring contribution to objectives for the area identified in the regional biodiversity strategy.

- b) Require that the interest registered on any certificate of title, covenants the owner to take all reasonable steps to preserve and protect the area of enhanced or restored **indigenous vegetation** and **habitat** on a continuing basis.
- c) Ensure that the recipient area for the **transferred development right** excludes any location that is:
 - i. a **significant natural area**;
 - ii. an area identified for enhancement or **restoration** in a regional biodiversity strategy;
 - iii. in such proximity to any area identified in i) or ii) above, as may result in adverse effects to the **ecological integrity** of such areas;
 - iv. likely to result in significant adverse effects on ecological processes including connections and corridors between areas identified in i) and ii) above.
- d) Maintain a register of **transferable development rights** in use of sufficient detail to demonstrate compliance with this national policy statement.

Policy 21: Monitoring and reporting

Explanatory comment only

The issue this policy seeks to address is the need to strengthen the depth and consistency with which biodiversity (state of the environment) and biodiversity interventions (the effectiveness of the NPS, plans and regional biodiversity strategies) are monitored and the results of that monitoring reported around the country.

The recommendations made in the CSM report assist in conveying the BCG's thinking on the monitoring requirements but there has been insufficient time to develop the NPS policy to a standard that the BCG can confidently promote as appropriate and practicable.

In broad terms, the policy should:

- *Require regional councils, in cooperation with territorial councils, to monitor the condition and state of indigenous biodiversity and significant natural areas in their regions*
- *Require monitoring to be undertaken according to nationally agreed standards*
- *Require the reporting of information at appropriate intervals.*

Policy 22: Implementing this national policy statement

1. This policy applies to the implementation by a regional council or territorial authority of a policy of this national policy statement.
2. In accordance with section 55 (2D) of the Resource Management Act 1991, except as provided for in Policy 22(3)–(6), every regional council and territorial authority is to implement this national policy statement as promptly as is reasonably practicable.

3. Unless Policy 22(4) applies, every regional council or territorial authority must:
 - a) Implement Policy 4(1) and 4(4)(a) and (b) of this national policy statement within [five] years of the gazettal of this national policy statement; and
 - b) Notify a plan change to implement Policy 4(4)(c) within [six] years.
4. Regional councils and territorial authorities need not comply with Policy 22(3) if their relevant plan contains mapped **significant natural areas** that are demonstrated, following an evaluation of the plan, to have been identified in substantial conformance with the criteria of Appendix 1 of this national policy statement.
5. Where Policy 22(4) applies, each regional council and territorial authority must implement:
 - a) Policy 4 at the next scheduled review of the district plan or by [2028], whichever is sooner; and
 - b) Policies 6 and 7 as if reference to **significant natural areas** in those policies was reference to **significant natural areas** identified in the district plan or proposed district plan as at the date of gazettal of this national policy statement.
6. Every regional council must implement Policy 17 within [three years] of gazettal of this national policy statement.

Appendix 1: Criteria for identifying significant natural areas in accordance with Policy 4

Terms defined in the Interpretation section of this national policy statement also apply to Appendices 1 to 4.

Direction on approach

In accordance with Policy 4 of this national policy statement, regional councils in the coastal marine area and territorial authorities in the terrestrial domain must, through a suitably qualified ecologist, use the following four criteria for assessment of significant **indigenous vegetation** and significant **habitats** of indigenous fauna:

- Representativeness
- Diversity and Pattern
- Rarity and Distinctiveness
- Ecological Context.

The frameworks for assessment of significance are ecological districts or land environment, [except for geothermal vegetation assessments for the Taupo Volcanic Zone in which case the ecological district is the Taupo Volcanic Zone], and marine biogeographic areas.

A site should be regarded as significant if it meets any one of the four criteria.

Physical identification of each **significant natural area** must be accompanied by a description of its significant attributes. For each criterion that description must include the attribute statement from the 'site attribute' that applies to that site. Under that attribute statement the **significant natural area** description must identify the specific **indigenous vegetation**, fauna, **habitat**, and ecosystems present. Additional description may be included.

Representativeness

The extent to which the vegetation or habitat of indigenous fauna is typical or characteristic of the indigenous biodiversity of the ecological district or marine biogeographic area.

Guidance

Indigenous vegetation or habitat of indigenous fauna that would be expected to occur at undeveloped¹⁸ sites in the ecological district or marine biogeographic area in the present-day environment (e.g., landform, soils, substrate, climate), including seral (regenerating) **indigenous vegetation**. Representativeness includes commonplace vegetation/**habitats**, which is where most indigenous **biodiversity** is present. It is not restricted to the best or most representative examples. And, it is not a measure of how well that vegetation or habitat is protected elsewhere in the ecological district.

¹⁸ 'Undeveloped' sites mean those sites at which the soil/substrate has not been cultivated/dredged

Assessment

Significant vegetation has structure and composition (**biodiversity**) typical of the **indigenous vegetation** of the ecological district or marine biogeographic area in the present-day environment. This includes secondary or regenerating vegetation that is recovering following natural or induced disturbance, provided species composition is typical of that type of vegetation. Significant fauna habitat is that which supports the typical suite of indigenous animals that would occur in the present-day environment.

Site attributes

Sites that qualify under this criterion will have any of the following attributes:

- Vegetation which has structure and composition (**biodiversity**) that is highly typical of the **indigenous vegetation** of the ecological district or marine biogeographic area.
- Intact habitat that supports a highly typical suite of indigenous animals.
- Vegetation which has modified structure and/or composition (**biodiversity**) though is still typical of the **indigenous vegetation** of the ecological district or marine biogeographic area.
- Modified habitat that supports a typical suite of indigenous animals.

For the avoidance of doubt, **indigenous vegetation** or habitat that is not typical of the **indigenous vegetation** or habitat of the ecological district or marine biogeographic area will not qualify as a **significant natural area** under this criterion.

Diversity and Pattern

The diversity and pattern of biological and physical components at the site.

Guidance

Diversity has biological components, such as species/taxa, communities, and ecological variation. It also has physical components, such as geology, soils/substrate, aspect/exposure, altitude/depth, temperature, salinity, turbidity, and waves/currents. Pattern includes changes along environmental gradients, such as ecotones and sequences. Some communities or **habitats** are uniform, with naturally low species diversity; that attribute is assessed under the representativeness criterion.

Assessment

Significance is the extent to which the biological range and environmental variation at a site reflects that present in the ecological district. Sites that have a wider range of species, **habitats**, or communities, or wider environmental variation due to ecotones, gradients and sequences, rate more highly.

Site attributes

Sites that qualify under this criterion will have any of the following attributes:

- A high diversity of indigenous species, **habitats** or communities, and/or presence of important ecotones, or complete gradients or sequences.

- A moderate diversity of indigenous species, **habitats** or communities, and/or presence of ecotones, or partial gradients or sequences.

For the avoidance of doubt, a site with low diversity of indigenous species, **habitats** or communities, and lack of ecotones, gradients or sequences will not qualify as a **significant natural area** under this criterion.

Rarity and Distinctiveness

The presence of rare or distinctive species, habitats, vegetation or ecosystems.

Guidance

Rarity is the scarcity (natural or induced) of indigenous species, habitats, vegetation, or ecosystems. Rarity includes things that are uncommon, and things that are threatened. 'Threatened' and 'at risk' (including 'naturally uncommon') species at a national scale are listed in publications (for plants, mammals, birds, and reptiles) prepared and regularly updated by the Department of Conservation. Rarity at a regional or local scale is defined by local lists or determined by expert ecological advice. Further effort is needed to prepare regional and local lists, especially for fauna. The significance of nationally-listed species should not be downgraded if they are locally common.

Historically rare (or naturally uncommon) terrestrial ecosystems are defined and listed by Williams et al (2007). These ecosystems, along with wetlands and sand dunes, are proposed as a priority for protection on private land by the Ministry for the Environment (2007).

Two national frameworks that are available for the assessment of depletion of terrestrial **indigenous vegetation** or ecosystems are in common use: Ecological Districts, as defined by McEwen (1987); and Land Environments, as defined by Leathwick et al. (2003). Rarity of **indigenous vegetation** in each Land Environment has been assessed by Walker et al. (2006) and Cieraad et al. (2015). Land Environment data should be interpreted with caution. These are based on physical attributes which may not accurately reflect vegetation (or habitat) patterns at a local scale.

Distinctiveness includes distribution limits, type localities, local endemism, relict distributions, and special ecological or scientific features.

Assessment

Vegetation/habitat is significant if it supports any of the following:

- 'threatened', 'at risk' or 'data deficient' indigenous species (as defined by national lists)
- regionally or locally uncommon indigenous species, **habitats**, vegetation or ecosystems
- terrestrial **indigenous vegetation** depleted to less than 20 per cent of its former extent in the ecological district or land environment
- **indigenous vegetation**/habitat on sand dunes, wetlands, or estuaries
- biogenic **habitats**¹⁹ in the marine environment

¹⁹ "biogenic habitats" are **habitats** created by the physical structure of living or dead organisms or by their interaction with the substrate

- **indigenous vegetation** in historically rare/naturally uncommon ecosystems
- an indigenous species at its distributional limit
- the type locality of an indigenous species
- a distinctive assemblage or community of indigenous species (such as on unusual substrates)
- a special ecological or scientific feature.

Application of the recently published list of the threat status of indigenous plants (de Lange et al., 2018) should be guided by expert ecological advice. Species within the Myrtaceae family that are relatively common in many areas (kānuka, mānuka, and rata species) are listed as 'threatened' or 'at risk', due to the threat posed by myrtle rust. These species are listed with the qualifiers DP (data poor) and De (taxa) that do not fit the criteria so are designated to the most appropriate listing).

With respect to fauna habitat, professional ecological judgement should be used when assessing significance, such as a golf course that has the occasional presence of a mobile 'threatened' species (e.g., black stilt), compared with a shrubland that has the presence of a relatively sedentary 'at risk' species (e.g., southern grass skink). The golf course should not be rated as significant habitat; whereas the shrubland should.

Site attributes

Sites that qualify under this criterion will have any of the following attributes:

- Provides habitat for a nationally 'threatened', or several 'at risk', indigenous plant or animal species
- An indigenous species or plant community at its distributional limit
- **Indigenous vegetation** or habitat of indigenous fauna, or ecosystem, that has been reduced to less than 10 per cent of its former extent in the ecological district or land environment
- **Indigenous vegetation**/habitat occurring on sand dunes, wetlands, or estuaries
- Biogenic **habitats** in the marine environment
- **Indigenous vegetation**/habitat occurring on 'originally rare' ecosystem types.
- Provides habitat for an 'at risk', 'data deficient', regionally uncommon, or locally uncommon indigenous plant or animal species.
- An indigenous species or plant community near its distributional limit
- **Indigenous vegetation** or **habitat** of indigenous fauna, or ecosystem, that has been reduced to between 10 and 20 per cent of its former extent in the ecological district or land environment
- The presence of a distinctive assemblage or community of indigenous species, or special ecological or scientific feature.

For the avoidance of doubt, sites with the following attributes do not qualify as **significant natural areas** under this criterion:

- Supports no 'threatened', 'at risk', 'data deficient', regionally or locally uncommon indigenous species, and no indigenous species near distribution limits

- Is not **indigenous vegetation/habitat** on sand dunes, wetlands, estuaries or 'originally rare' ecosystems.
- Is not **indigenous vegetation** or **habitat** of indigenous fauna that has been reduced to less than 30 per cent of its former extent in the ecological district or land environment
- Has no distinctive assemblage or community of indigenous species, or special ecological or scientific features.

Ecological context

The extent to which the size, shape, and position of an area within the wider environment (land, fresh water or marine) contributes to the maintenance of indigenous biodiversity.

Guidance

Ecological context has two main attributes: the characteristics that help maintain indigenous **biodiversity** at the site (such as size, shape and configuration); and the contribution the site makes to protection of indigenous **biodiversity** in the wider landscape (such as by linking or buffering other sites, providing 'stepping stones' of **habitat**, or maintaining ecological and hydrological processes).

Assessment

Higher value is placed on sites that: have features (such as size, shape, configuration or buffering) that help maintain indigenous **biodiversity** at the site; support large numbers of, or provide important **habitat** for, indigenous fauna; provide a buffer to, or link between, other significant areas; or play an important role in the biological/natural functioning of a freshwater or coastal/marine system.

Attributes

Sites that qualify under this criterion will have any of the following attributes:

- A site that is large, has a good shape, and is well-buffered
- A site that provides a substantial buffer to, or link between, other significant sites and/or is very important for the natural functioning of a freshwater or coastal/marine system
- A site that supports large numbers of and/or provides critical **habitat** for indigenous fauna
- A site that is of moderate size, and has a good shape and/or is well buffered
- A site that provides a partial buffer to, or link between, other significant sites and/or is moderately important for the natural functioning of a freshwater or coastal/marine system.

For the avoidance of doubt, sites with the following attributes do not qualify as **significant natural areas** under this criterion:

- A small and/or poorly-buffered site
- A site that does not buffer or link other sites, and is unimportant for the natural functioning of a freshwater or coastal/marine system.

Appendix 2: Tool for managing effects on significant natural areas

Direction on approach

General

This appendix supports application of this national policy statement's policies relating to effects management in **significant natural areas** (Policies 6 and 7).

Pursuant to Appendix 1 and Policy 4, local authorities are required to map **significant natural areas** and to include a description of the specific attributes that contribute to the areas qualifying as **significant natural areas**. That description must include the relevant attribute from the 'site attribute list' under each criterion. This management tool includes the same 'site attributes' as those used in Appendix 1. It then allocates a 'high' or 'medium' rating to each attribute. The rating applying to a particular **significant natural area** will determine the effects management policies that apply to it. Some of the policies are worded in generic terms (i.e., they apply to all **significant natural areas**). Where that is the case, the policy applies irrespective of the **significant natural area's** rating. Some of the policies are worded to specifically apply to **significant natural areas** with a 'high' rating or with a 'medium' rating. Where that is the case then that policy only applies to **significant natural areas** with that rating.

A **significant natural area** qualifies as having a 'high' rating if it has one or more attributes that rate as 'high' in respect of any one of the four criteria.

Mānuka and Kānuka

Species within the Myrtaceae family that are relatively common in many areas (e.g. kānuka, mānuka, and rata species) are listed as 'threatened' or 'at risk', due to the threat posed by Myrtle Rust.

If a **significant natural area** is identified **only** because of the presence of mānuka and kānuka that is considered threatened on the **sole** basis of the threat posed by Myrtle Rust, that area should not be identified in planning maps as a **significant natural area** and Policy 6 does not apply. For the avoidance of doubt, this does not apply to species of mānuka and kānuka that are considered threatened for reasons other than Myrtle Rust, or which are present within a **significant natural area** that is identified as significant due to other attributes.

This exception must be reviewed within five years of gazettal.

Management framework

Representativeness

Site attributes	Rating
Vegetation which has structure and composition (biodiversity) that is highly typical of the indigenous vegetation of the ecological district or marine biogeographic area.	H
Intact habitat that supports a highly typical suite of indigenous animals.	H

Site attributes	Rating
Vegetation which has modified structure and/or composition (biodiversity) though is still typical of the indigenous vegetation of the ecological district or marine biogeographic area.	M
Modified habitat that supports a typical suite of indigenous animals.	M

Diversity and Pattern

Site attributes	Rating
A high diversity of indigenous species, habitats or communities, and/or presence of important ecotones, or complete gradients or sequences.	H
A moderate diversity of indigenous species, habitats or communities, and/or presence of ecotones, or partial gradients or sequences.	M

Rarity and Distinctiveness

Site attributes	Rating
Provides habitat for a nationally 'threatened', or several 'at risk', indigenous plant or animal species.	H
An indigenous species or plant community at its distributional limit.	H
Indigenous vegetation or habitat of indigenous fauna, or ecosystem, that has been reduced to less than 20% of its former extent in the ecological district or land environment.	H
Indigenous vegetation/habitat occurring on sand dunes, wetlands, or estuaries.	H
Biogenic habitats in the marine environment.	H
Indigenous vegetation/habitat occurring on 'originally rare' ecosystem types.	H
Provides habitat for an 'at risk', 'data deficient', regionally uncommon, or locally uncommon indigenous plant or animal species.	M
An indigenous species or plant community near its distributional limit.	M
Indigenous vegetation or habitat of indigenous fauna, or ecosystem, that has been reduced to between 20% and 30% of its former extent in the ecological district or land environment.	M
The presence of a distinctive assemblage or community of indigenous species, or special ecological or scientific feature.	M

Ecological context

Site attributes	Rating
A site that is large, has a good shape, and is well-buffered.	H
A site that provides a substantial buffer to, or link between, other significant sites and/or is very important for the natural functioning of a freshwater or coastal/marine system.	H
A site that supports large numbers of and/or provides critical habitat for indigenous fauna.	H
A site that is of moderate size, and has a good shape and/or is well buffered.	M
A site that provides a partial buffer to, or link between, other significant sites and/or is moderately important for the natural functioning of a freshwater or coastal/marine system.	M

Appendix 3: Wetland identification and delineation

In accordance with Policy 9 of this national policy statement, regional councils must, through a suitably qualified ecologist, use the following procedure for identification and delineation of wetlands. Defined terms relevant to this Appendix are set out below the procedure steps.

1. Determine general project area i.e., putative wetland.
2. Confirm that 'regular' circumstances are present (i.e., typical climatic and hydrologic conditions for the time of year, no recent disturbances such as flooding).
3. Determine whether **off-site methods** or **on-site methods** are to be used.
4. Undertake Hydrophytic vegetation determination by **Rapid Test** to determine if all dominant species are **OBL** or **FACW**.
 - a) If the **Rapid Test** finds all **dominant species** are **OBL** or **FACW** the assessed area is a wetland/part of a wetland. Further analysis is not required.
5. If the **Rapid Test** finds not all dominant species are **OBL** or **FACW** then undertake a **Dominance Test**:
 - a) If **Dominance Test** finds **OBL**, **FACW**, or **FAC** species are >50% the assessed area is a wetland/part of a wetland. Further analysis is not required.
6. If the **Dominance Test** finds:
 - a) All or most **dominant species** are **FAC**; or
 - b) **OBL**, **FACW**, or **FAC** species are <50%,
 then assess soil type and hydrology.
7. If an assessment of soil type and hydrology confirms:
 - a) That **hydric soils** are present; and
 - b) That wetland hydrology is present,
 then undertake a **Prevalence Index Test**. If an assessment confirms that **hydric soils** and wetland hydrology are not present the assessed area is not a wetland/part of a wetland.
8. If the **Prevalence Index Test** finds that **hydrophytic** vegetation is ≤ 3.0 the assessed area is a wetland/part of a wetland. Further analysis is not required
9. If the **Prevalence Index Test** finds that **Hydrophytic** vegetation is > 3.0 the assessed area is not a wetland/part of a wetland.

Supporting definitions for Appendix 3

Dominant Species: The most abundant plant species (when ranked in descending order of abundance, e.g., in a plot, and cumulatively totalled) that immediately exceed 50% of the total cover for the stratum, plus any additional species comprising 20% or more of the total cover for the stratum. Known as the 50/20 rule. Calculated for three stratum: tree, sapling/shrub, herb.

Dominance Test: More than 50% of dominant species across all strata are rated OBL, FACW, or FAC using the 50/20 rule.

Hydric Soils are soils that have been formed under conditions of saturation, flooding, or ponding and that have caused anaerobic (low oxygen) conditions in at least the upper 30cm of the soil.

Hydrophytes (hydrophytic vegetation): plant species capable of growing in soils that are often or constantly saturated with water during the growing season. The hydrophyte categories are:

- **Obligate (OBL):** Occurs almost always in wetlands (estimated probability >99% in wetlands)
- **Facultative Wetland (FACW):** Occurs usually in wetlands (67–99%)
- **Facultative (FAC):** Equally likely to occur in wetlands or non-wetlands (34–66%)
- **Facultative Upland (FACU):** Occurs occasionally in wetlands (1–33%)
- **Upland (UPL):** Rarely occurs in wetlands (<1%), almost always in 'uplands' (non-wetlands)

Off-site methods: Methods by which wetland identification and delineation can occur away from the project area. Ability to use off-site methods will depend on:

- Amount and quality of data including aerial photographs, maps, previous reports
- Wetland ecological expertise to interpret data.

On-site methods: Methods by which wetland identification and delineation can occur at the project area:

- For small areas (≤ 2 ha), establish a representative plot in each major vegetation type. Record plot vegetation in 3 strata: tree, sapling/shrub, herb
- For large areas (> 2 ha) establish representative plots along transects as per Clarkson et al., 2014. Record vegetation in 3 strata: tree, sapling/shrub, herb

Prevalence Index Test: A plot-based algorithm derived from the unique combination of OBL–UPL plants and their cover. The vegetation is considered to be hydrophytic if $PI \leq 3.0$, but values around 3.0 should be used alongside other wetland indicators.

Rapid Test: All dominant species across all strata are rated OBL and/or FACW.

Appendix 4: Principles for offsetting effects on indigenous biodiversity

The following framework for the use of **biodiversity offsets** should be read in conjunction with the New Zealand Government Guidance on Good Practice Biodiversity Offsetting in New Zealand, New Zealand Government et al., August 2014 (or any successor document):

1. **Restoration**, enhancement and protection actions will only be considered a **biodiversity offset** where it is used to offset the [significant] residual effects of activities after the adverse effects have been avoided, remedied or mitigated.
2. **Restoration**, enhancement and protection actions undertaken as a **biodiversity offset** are demonstrably additional to what otherwise would occur, including that they are additional to any avoidance, remediation or mitigation undertaken in relation to the adverse effects of the activity.
3. **Biodiversity offset** actions should be undertaken close to the location of development, where this will result in the best ecological outcome.
4. The values to be lost through the activity to which the offset applies are counterbalanced by the proposed offsetting activity, which is at least commensurate with the adverse effects on indigenous **biodiversity**. The overall result should be no net loss, and preferably a net gain in ecological values.
5. The offset is applied so that the ecological values being achieved through the offset are the same or similar to those being lost.
6. There are situations where residual impacts cannot be fully compensated for by a **biodiversity offset** because of the irreplaceability or vulnerability of the **biodiversity** affected.

Appendix 5: Principles for Regional Biodiversity Strategies

1. The purpose of the regional biodiversity strategy is to promote a landscape-scale enhancement and **restoration** vision for the region's indigenous **biodiversity** that:
 - a) Recognises and provides for Hutia Te Rito;
 - b) Restores and enhances **significant natural areas**, connectivity and buffering;
 - c) Enhances the sustainability of **indigenous biodiversity depleted environments**;
 - d) Increases or strengthens biological or physical connections with identified taonga and between terrestrial, freshwater, and coastal marine ecosystems;
 - e) Supports achievement of any national priorities for **biodiversity** protection;
 - f) Is resilient to biological and environmental changes associated with climate change.
2. To achieve its purpose the regional biodiversity strategy shall:
 - a) Spatially identify the components of the region's landscape-scale enhancement and **restoration** vision including:
 - i. existing **significant natural areas** and identified taonga to be protected;
 - ii. areas within **indigenous biodiversity depleted environments** that are intended to be reconstructed or restored; and
 - iii. any other components to be enhanced or restored.
 - b) Specify:
 - i. actions that will be undertaken by local or central government;
 - ii. actions that the community including tangata whenua will be supported or encouraged to undertake; and
 - iii. how those actions will be resourced

to assist the achievement of indigenous cover targets, and **restoration, reconstruction** and enhancement objectives set in accordance with Policies 16–18.

 - c) Specify milestones for achieving the Strategy's purpose and the objectives of this national policy statement.
 - d) Specify how progress on achieving the Strategy's purpose is to be monitored and reported on and measures to be taken if milestones are not being met.
3. In developing the regional biodiversity strategy, take into account:
 - a) Opportunities to engage the community including tangata whenua in conservation, and in particular to connect urban people and communities to the natural environment.
 - b) Opportunities for partnerships with the QEII Trust, Ngā Whenua Rāhui and other
 - c) Considering incentive opportunities specific to Māori Land.

- d) Co-benefits, including for water quality and freshwater **habitats**, carbon sequestration, and hazard mitigation.
 - e) Alignment with strategies under other legislation.
4. The regional biodiversity strategy may include measures that are intended to implement other objectives such as biosecurity, climate mitigation, amenity, or improved freshwater outcomes as well as **biodiversity** outcomes.

Part 3: The Biodiversity Collaborative Group's Complementary and Supporting Measures for Indigenous Biodiversity

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Introduction and summary

Protecting nature is a values-based concept. While law and regulation set important boundaries for human actions, as proposed with the draft National Policy Statement for Indigenous Biodiversity (NPSIB), other initiatives are equally important. Complementary and supporting measures are required. This report sets out the actions and resources that the Biodiversity Collaborative Group (BCG) consider are needed both to make sure the NPSIB is implemented well, and perhaps more importantly, to encourage the step change in how people care for and protect indigenous biodiversity.

This report recommends leadership initiatives that are essential to ensure focus, coordination, drive and continuity at a national, regional and local level to improve the condition of indigenous biodiversity.

If we want to see our indigenous flora and fauna flourish throughout our country, not only in protected areas, it is essential that current efforts are supported and expanded. Engaging hearts and minds involves encouraging the considerable voluntary effort that takes place now and expanding those efforts. The report recommends allocating significant resources to support and expand the voluntary-based efforts of Māori, other landowners and managers, and communities and environmental groups. This will also require improving and disseminating knowledge, assisting with good practice and techniques, monitoring of results of initiatives and measures, and experts working to assist and promote improved management.

Success in arresting biodiversity decline also requires integrating and aligning wider government policy, institutional arrangements and regulations. Otherwise we run the risk of one initiative negating or impeding the other. The report identifies key areas where alignment is important.

A final important part of these supporting measures is a comprehensive approach to understanding where indigenous biodiversity is improving or declining. It is not sufficient to simply encourage actions without knowing what the results are. It requires nationally consistent monitoring and reporting in a way that is accessible to everyone. It also means being prepared to act when things are clearly declining and when there are actions that are in breach of the provisions of the law or consents.

The BCG cannot emphasise more strongly how important the supporting measures are. Regulation alone will not solve such a complex issue as biodiversity decline. It will require leadership, increased knowledge, encouragement, resourcing and alignment of initiatives. An integrated approach will deliver the step change needed to halt the decline in indigenous biodiversity and encourage it to flourish in Aotearoa New Zealand.

NOTE: Terms defined in the Interpretation section of the National Policy Statement for Indigenous Biodiversity also apply to this Report.

1. Leadership in protecting and maintaining Aotearoa New Zealand's indigenous biodiversity

Objective: Coordinated, strategic leadership of the biodiversity management system is provided to ensure protection and enhancement actions are focused on where they are needed most, and that the different agencies, businesses, and communities involved are working together.

Empower the Department of Conservation to provide national leadership of the biodiversity management system

Every cause needs strong leadership. Halting the decline in Aotearoa New Zealand's biodiversity and ensuring it thrives is no exception. Fortunately, many entities have responsibilities for or have an interest in protecting our indigenous biodiversity. Those involved in biodiversity management include:

- Department of Conservation (DOC)
- Ministry for the Environment (MfE)
- Ministry for Primary Industries, including Biosecurity New Zealand and Te Uru Rākau
- New Zealand Conservation Authority
- Tangata whenua
- Predator Free New Zealand
- Local authorities
- QEII National Trust, Ngā Whenua Rāhui and other covenanting entities
- Private landowners
- Community groups
- Landcare Trust
- Private entities with a conservation focus
- Collaborative entities formed for a specific outcome.

What is missing, however, is coordination. Symptoms of lack of coordination are that:

- There are multiple players but none has a clear and specific mandate for overseeing the maintenance of indigenous biodiversity at a national level
- The roles and responsibilities of different agencies for biodiversity management are not clear in relevant legislation

- The overall system for biodiversity management has not dealt with the recent emergence of new entities and responsibilities well
- There are a plethora of documents which do not consider biodiversity in a holistic manner, and there is no clear mechanism to ensure alignment and compatibility between these documents
- Although the high-level goals of the Biodiversity Strategy (2000) and Biodiversity Action Plan (2016) are generally sound, they have failed to fulfil their respective objectives owing to slow and ineffective implementation and monitoring of achievement of actions and goals
- There is a conflation of DOC's and MfE's respective roles, and, to a lesser extent, those of the Ministry of Primary Industries.

The BCG has come to the view that strong, overarching, national leadership of the biodiversity management system is urgently required to provide coordination in order to maximise the impact of the collective efforts across the country.

The BCG considers that, with the plethora of actors already involved in biodiversity management, it is preferable for an existing entity to take on the leadership role. The BCG recommends that this entity be DOC because:

- DOC's primary function is to protect and manage indigenous biodiversity. It has greater focus than other agencies with competing non-biodiversity priorities.
- DOC has a statutory duty to manage public conservation land for conservation purposes, i.e., the protection and preservation of natural and historic resources which includes inter alia plants and animals of all kinds; air, water, and soil; and systems of interacting living organisms and their environment.²⁰
- DOC has broader statutory duties to advocate for conservation of natural resources, promote the benefits of conservation, and to educate New Zealanders about conservation.
- DOC administers the QEII National Trust Act 1977 and much of the nation's other nature conservation legislation.
- DOC has a duty in legislation to advocate for conservation on land of all tenures (e.g., public, private, lease-hold), irrespective of ownership.
- DOC has nationwide connections with people and groups outside government, and a national and regional presence. This existing network of connections would allow it to provide national-level strategic oversight, as well as to play a practical role on the ground to assist with the alignment of regional and district efforts and actions with national strategic direction and priorities.
- DOC is a repository for information, resources and expertise. It combines policy, regulatory and operational expertise.
- DOC has other functions relevant to biodiversity outside of those relating specifically to public conservation land such as wildlife protection and biosecurity, and functions that cross land, freshwater and marine environmental domains.
- The Department has clear, directive Treaty of Waitangi obligations.

²⁰ Conservation Act 1987 s6.

A national-level, strategic oversight role will require action and change for DOC: change in the way all central government agencies cooperate with each other, as well as with local government and other organisations and sectors – all with the objective of halting biodiversity decline. For DOC, being a leader at a national level will require it to work collaboratively with others, and take a wide view to ensure everyone's environmental, economic, social and cultural perspectives are incorporated.

As the leader of the biodiversity management system, DOC will need to:

- Work with other national agencies with interests in halting the decline in indigenous biodiversity to set the agenda for action by identifying priorities for protection and management alongside specific and measurable national level objectives and targets taking a tenure-neutral approach.
- Ensure there is clear direction on the roles and responsibilities of different players, including on how those players are to communicate in decision-making in their respective spheres – for example where different consents or permissions are required (i.e. under a district and regional plan or under a Resource Management Act plan and the Wildlife Act).
- Act as a conduit between the different players by ensuring the information and means for easy communication is available.
- Engage in and facilitate partnerships with and between the different players in order to progress protection and enhancement efforts.
- Monitor and assess progress in achieving national objectives and targets and take responsibility for developing and implementing changes or for filling gaps if necessary.
- Oversee the national biodiversity database (see Section 4).
- Support uptake of nationally applicable monitoring (currently Tier 1 and 2 of the biodiversity monitoring frameworks) to achieve standardisation (see Section 4).
- Support establishment and operation of regional community conservation hubs (see Section 2 below).
- Assist in the development of regional biodiversity strategies (Policy 17 in the proposed NPSIB).

The BCG sees the pending review of the Biodiversity Strategy as an opportunity for repositioning DOC as the leader of the biodiversity management system.

The recommendations in this section are intended to sit alongside and support the recommendation to develop community conservation hubs and to develop non-regulatory regional biodiversity strategies. Community conservation hubs are intended to be the on-the-ground method for connecting community and private sector action with the action of agencies (government departments and councils). Regional biodiversity strategies, developed through the collaboration of regional and district authorities, DOC and the community, are intended to provide the same strategic vision at the regional scale that DOC will provide at a national scale. The NPSIB also provides some direction on roles and responsibilities between regional and district councils.

Recommendations

- 1.1 DOC assumes the leadership role of Aotearoa New Zealand's biodiversity management system and undertakes the necessary steps to:
- Ensure there is a clear agenda for action identifying priorities for protection and management, and specific and measurable national-level objectives and targets taking a tenure-neutral approach
 - Ensure there is agreement and clarity in roles and responsibilities of government agencies
 - Monitor and assess progress in achieving national objectives and targets and where they are not, take responsibility to lead change any necessary change in strategy, policy and actions
 - Oversee the national biodiversity database
 - Support establishment and operation of regional community conservation hubs
 - Assist in the development of regional biodiversity strategies
 - Support the application of standardised nationally-applicable monitoring.
 - That work is collaborative in nature and considers a full range of environmental, economic, cultural and social perspectives
- 1.2 The review of the National Biodiversity Strategy be used as a mechanism to implement the above requirements.

Increase the profile of indigenous biodiversity within local and central government

Halting the decline in indigenous biodiversity is a critically important national issue. It involves cross-cutting considerations similar to addressing human-induced climate change.

The previous section addressed the need for leadership at a national level for indigenous biodiversity. This section looks at how to coordinate and integrate biodiversity action at a governmental level, nationally, regionally and locally.

The BCG understands there is currently a cross-Ministry working group which is intended to ensure indigenous biodiversity is considered across government decision-making. However, in the BCG's experience halting biodiversity decline has tended to become a lower priority when measured against other government actions. This undermines public confidence in the government's commitment to ensuring a healthy, natural environment for future generations, and compromises public understanding of the severity of biodiversity loss and the importance of addressing it.

The BCG considers that a more targeted and strategic approach is required at a national level to ensure cross-Ministry decision-making. In particular, policy, investment, and development decisions should be required to consider impacts to determine consistency with objectives to maintain indigenous biodiversity.

There are also many current programmes which are either directly related to indigenous biodiversity in some way, or which could contribute to indigenous biodiversity gains if strategically applied. However, it does not appear that these programmes are aligned to

ensure that indigenous biodiversity is considered, and to target complementary indigenous biodiversity outcomes. Some of these programmes are specifically addressed under Section 5 below, however the BCG considers that a government-wide analysis of relevant opportunities followed by changes to ensure alignment and consideration of indigenous biodiversity under each programme is required.

Coordination and integration is similarly required at regional and local government levels. The Local Government Act 2002 (LGA) has very little scope for consideration of indigenous biodiversity despite the regional and district council obligation under the Resource Management Act 1991 (RMA) to maintain indigenous biodiversity and other local authority biodiversity-related responsibilities. In performing their roles under the LGA, local authorities must act in accordance with a set of principles that include a 'sustainable development' approach which incorporates consideration of the need to maintain and enhance the quality of the environment. However, this principle is too general to provide clear direction for decision-making that has indigenous biodiversity front of mind. Reorientation of local authorities' operating principles to raise the profile of indigenous biodiversity maintenance is necessary to ensure decision-making appropriately considers this objective. A related issue and recommendation regarding bylaw powers is set out in Section 5.

Recommendations

- 1.3 The cross-Ministry indigenous biodiversity working group should ensure there is a regular forum, preferably at CEO level, and:
 - In addition to its current membership of DOC, MPI, MFE, LINZ, MFAT, TPK and Treasury, also include the Ministry of Business, Innovation and Employment, Ministry of Foreign Affairs and Trade, Ministry of Housing and Urban Development, and Ministry of Transport.
 - Be tasked with developing a protocol to be used by all ministries to analyse decisions to ensure impacts on indigenous biodiversity are appropriately considered, and consistency of decisions with the objective of maintaining indigenous biodiversity.
 - Develop a working group feedback procedure, reporting to DOC on analysis of decisions against that protocol in order for DOC to be able to assess the efficacy of that approach and recommend changes required.
 - If not at a CEO level, to ensure that the members of the forum are of appropriate seniority to ensure the protocol in Recommendation 1.3 is applied.
- 1.4 Subsequent to development of a national protocol, regional and territorial authorities to develop a similar protocol for local government decision-making. The local government protocol should align with the national protocol.
- 1.5 Parliament to amend section 14 of the Local Government Act 2002 to provide for maintenance of indigenous biodiversity as a principle relating to local authorities' performance of their role
- 1.6 The Ministry for the Environment, overseen and supported by the cross-Ministry indigenous biodiversity working group should undertake a comprehensive analysis of existing government programmes to:

- Determine which are currently directly related to indigenous biodiversity
- Which are not directly related to indigenous biodiversity but through which indigenous biodiversity outcomes could be achieved
- Recommend changes to each programme to ensure alignment in how indigenous biodiversity is considered, and the specific indigenous biodiversity outcomes being contributed to by each.

Supporting implementation of the National Policy Statement for Indigenous Biodiversity

Financial support and guidance

Some elements of the BCG's proposed NPSIB provisions will require action over and above what is currently being undertaken by many councils. In particular, compliance with the proposal that significant indigenous vegetation and significant habitat of indigenous fauna (the protection of which is required under section 6(c) of the RMA) be identified and mapped instead of identified on a case-by-case basis in response to a consent application, will be resource intensive. Many councils have already undertaken this process and the NPSIB includes transitional provisions to ensure that the cost to those councils and to councils that are yet to undertake this work can be managed. Nonetheless, the BCG recognises that this process will present some challenges, particularly for those with smaller populations and large jurisdictions. For some, the process will be challenging for financial reasons, and for others because councils do not have ready access to the necessary expertise. As a result, the BCG recommends that MfE and DOC should provide support for those councils that need it to ensure the identification and mapping of these significant natural areas is thorough, robust, and done as quickly as possible.

For other elements of the proposed NPSIB, guidance will be needed to assist correct and consistent implementation, particularly in respect of identification and management of section 6(c) significant areas of indigenous vegetation and habitat of indigenous fauna. The BCG considers that guidance on the implementation of terms used in the policies relating to identification of significant natural areas and management of effects is essential, and that this guidance should be developed with input from ecologists. As has been noted, many of the BCG's recommendations are intended to tie together. Here, community conservation hubs will be the critical mechanism for ensuring guidance is disseminated.

Recommendations

- 1.7 The Ministry for the Environment and DOC establish and maintain a contestable fund for local authorities to access for assistance with identification and mapping of s6(c) areas of significant indigenous vegetation and habitats of indigenous fauna. The fund should be subject to criteria prioritising local authorities with a large land area and a low rating base.
- 1.8 DOC make its ecological experts available to local authorities to assist with identification and mapping of section 6(c) areas of significant indigenous vegetation and habitats of indigenous fauna.
- 1.9 The Ministry for the Environment and DOC ecological experts develop guidance with local authorities to support appropriate implementation of policies, in particular, in respect of:

- Fragmentation
- Loss of extent
- Disruption of ecological sequences, mosaics, or processes
- Loss of buffering or connectivity
- Reduction in population size
- Reduction in species occupancy across natural range
- Reduction in indigenous character
- Reduction in ecosystem representation
- Ecosystem resilience
- Ecosystem adaptability.

Identifying section 6(c) areas of significant indigenous vegetation and habitat of indigenous fauna on public land

Protection of s6(c) areas of significant indigenous vegetation and habitat of indigenous fauna on public land is a critical part of the management framework. An understanding of biodiversity values across all land tenures is needed, and mapping significant natural areas on public and private land will assist in this understanding. Surveys of the presence of highly mobile fauna will also need to be across tenures.

The NPSIB requirement for identification and mapping of these areas is directed at regional, unitary and district councils as the entities with responsibility for developing plans under the RMA. However, the network of Aotearoa New Zealand's significant natural areas needs to be complete so that informed and effective decisions on protection and enhancement can be made (for example, in identifying a landscape-scale restoration project focused on 'building on what we've got' by connecting existing significant areas). It is also critical for monitoring overall state and trends. In short, a "tenure neutral" approach across public and private land is crucial for effective biodiversity management.

Central government should be responsible for providing the resources and expertise required for SNA identification on all central government-administered land to avoid placing an undue burden on ratepayers (who are already responsible for the costs of mapping SNAs on private land). The same ecological criteria should be used to determine significance, regardless of tenure.

Recommendations

- 1.10 Public land managers, including the DOC, Land Information New Zealand (LINZ), and Ministry of Defence, to undertake and cover the costs of identification and mapping of s6(c) areas of significant indigenous vegetation and habitat of indigenous fauna on government administered land applying the criteria in Appendix 1 of the proposed NPSIB.
- 1.11 DOC to assist local government by providing information regarding highly mobile fauna.

Continue the Department of Conservation's existing work programmes and support increased efforts

DOC has the responsibility of managing large areas of New Zealand's remaining forests, wetlands, braided river habitats, and other threatened ecosystems that are home to numerous indigenous plants and animals that are in serious trouble. Despite small local gains, the overall situation for indigenous biodiversity is getting worse.

Where there is regular pest control, native species are doing well, but most forests are not receiving regular pest control and in these areas time is running out. A third of Aotearoa New Zealand's land area is public conservation land managed by DOC but only one eighth of that is subject to predator control. Only about five percent of public conservation land is treated with 1080 in a normal year.

The Parliamentary Commissioner for the Environment found in a report evaluating the use of 1080 (a poison comprised of a synthetic form of sodium fluoroacetate used to control pest animals), that Aotearoa New Zealand should be using more 1080 to save our forests and the wildlife that lives in them.²¹ At this stage, 1080 is the most effective method available to eradicate predators at landscape scale necessary to control pests.

The community has an essential role to play in ensuring that our indigenous biodiversity thrives, but DOC's role is, and will continue to be, fundamental to achieving that goal. If we are to halt the ongoing decline of our indigenous species and their habitats DOC must have a central role in managing pest species and advocating for the protection of our natural resources generally. Maintaining indigenous biodiversity is going to require an increased proportion of Aotearoa New Zealand's environment to be protected and actively managed to remove pests. Because of the distribution of threatened environments, much of this work will need to occur on private land. In order for promotion by government of increased protection on private land to have resonance it needs to show that it is prepared to increase its financial commitment to protecting land under its control.

Recommendations

- 1.12 DOC's core funding be increased to enable it to effectively carry out its role as the lead agency for biodiversity management (as per Recommendation 1.1), and to:
 - ensure continued active management of the conservation estate currently being actively managed, and
 - increase the area being actively managed.
- 1.13 Expand landscape-scale pest control using the most appropriate and effective methods at that scale.

²¹ Parliamentary Commissioner for the Environment (2011). *Evaluation the use of 1080: predators, poisons and silent forests*. Wellington: Parliamentary Commissioner for the Environment.

2. Support and better coordinate efforts

Objective: Local communities and tangata whenua are empowered to protect and enhance indigenous biodiversity at home and within their rohe.

Community coordination through regional community hubs

Funding restraints, personnel demands, and the scale and changing nature of conservation mean government departments cannot do it alone. It is fortunate therefore that community-based conservation initiatives are growing. Community conservation activities are those primarily planned, led, and executed by volunteers, people or entities other than publicly-funded government bodies, and include landowner-led projects, projects administered by community groups, and conservation projects led by tangata whenua.

These community projects contribute significantly to halting the decline of indigenous biodiversity.

Community-led tree-planting projects, for example, increase habitat to support indigenous species and indigenous vegetation cover to help bring depleted ecosystems to a point where they are self-sustaining. The community also plays an essential role in eradicating pest plants and animals through initiatives such as large-scale trapping projects in rural areas, through to home-owners in urban communities putting traps in their backyard. A lot of these projects are supported by DOC and local government but community-based conservation needs more support and clear direction to maximise benefits and to ensure those benefits endure.

Issues faced by community-based conservation groups and initiatives have been investigated by the Parliamentary Commissioner for the Environment (PCE) in a 2017 report, and in a 2018 report commissioned by Predator Free New Zealand (PFNZ).²² These include:

- Lack of clear national direction on the role of community conservation
- Lack of alignment with national conservation priorities and ecological outcomes
- Difficulties in accessing funding, complexity of applications, timing and the amount of funding
- Need for practical support (e.g., what to plant and how to trap), and access to tools and physical resources, education, advice and support
- Need for administrative support
- Need for information and technical support to ensure ecological outcomes are met and to prevent poor monitoring of ecological outcomes
- Lack of connectivity between multiple, small-scale projects.

²² PCE (2017). *Taonga of an island nation: Saving New Zealand's birds*. Wellington: PCE; Brown, Marie (2018). 'Transforming community conservation funding in NZ', a report prepared for PFNZ.

Both reports suggest that the establishment of community conservation hubs would resolve many of these issues. The success of existing conservation hubs, such as Wellington City Council's Our Natural Capital, Taranaki's Wild for Taranaki, and the Bay of Plenty's Bay Conservation Alliance show how effective these entities can be.

Exactly where these hubs should sit and which entity should oversee them is a difficult question. Both the PCE and PPNZ Reports suggest a new, independent agency. However, because responsibility for conservation sits with multiple public agencies, to maximise efficient use of resources, and ensure easy access for community groups and individuals, the BCG recommends that community conservation hubs should:

- Be based at regional council offices, ideally with a staff member dedicated to enabling community conservation
- Have oversight from regional councils but be a partnership between DOC, district councils, tangata whenua, one or more private conservation covenant entities (e.g., QEII, Ngā Whenua Rāhui), any privately operated entities overseeing large scale conservation projects in the region with a person or persons from each specifically allocated to a community conservation role
- Have a national oversight team at DOC to assist with and ensure national consistency in necessary areas such as monitoring and funding applications.

Funding for community conservation is critical for success. In addition to helping with the direct costs of a project, regional council support and alignment with national and regional conservation priorities helps to give other funders confidence to support a project. The BCG is acutely aware of the cost of conservation and the need to ensure ecological gains from investment are maximised. The PFNZ report includes a comprehensive analysis of the issues with funding of community conservation, some of which have simple answers:

- Reviewing application templates to make them simpler and making them available online
- Including a requirement for applications to identify ecological outcomes and provide detail about the activity (e.g., what trees, how many and where they will go) so funders feel confident to pay upfront
- Clearly identifying priority restoration areas and prioritising community initiatives which align with national or regional restoration objectives, but not excluding consideration of other areas that the community are passionate about.

Any restriction on funding allocation priorities needs to be carefully considered to prevent perverse outcomes. Community conservation initiatives are typically driven by a personal and emotional connection to a specific area and cannot simply be uplifted and transferred somewhere else, even if the new area better aligns with broader conservation priorities. Funding of priority areas should be preferred but ability to secure funding and other support (e.g., information, seedlings, traps etc.) for other areas community groups care about should still be available where there is positive contribution to biodiversity outcomes (e.g., connectivity with a priority site, co-benefits for freshwater quality).

Some of the issues identified above can also be addressed by being more specific about where community conservation sits in the overall conservation effort at a national and regional level; others by standardising monitoring measures and making those simple and accessible; and others by providing incentives to focus on priority areas, such as regional funds being preferentially allocated to projects which align with priority areas (similar to the funding approach applied to transport).

Recommendations

- 2.1 Regional councils, in partnership with the DOC, district councils, private conservation covenant entities (e.g. QEII, Ngā Whenua Rāhui), and privately operated entities overseeing large scale conservation projects (e.g., Cape to City, Reconnecting Northland) to establish community conservation hubs to:
 - Provide support and direction to community conservation to support existing effort, and expand capacity to maximise environmental benefits and ensure those benefits endure
 - Recognise and support the role of community-based conservation efforts in achieving regional biodiversity strategy conservation priorities
 - Support alignment of community conservation effort with national and regional conservation priorities.
- 2.2 Each community conservation hub should:
 - Ideally, have at least one staff member primarily dedicated to supporting and expanding community conservation efforts
 - Facilitate partnerships between different entities looking to undertake protection and enhancement actions, including between existing and new actions, proposed actions and Regional Biodiversity Strategy goals, and between entities (e.g., community groups and QEII National Trust or corporate entities)
 - Ensure coordination with DOC, district councils, Ngā Whenua Rāhui, QEII National Trust, Landcare Trust, NGOs, tangata whenua, funding entities
 - Provide administrative support to assist with funding applications and accountability
 - Provide practical support (e.g., helping to get the message out about planting days, provision of traps)
 - Providing technical support (e.g., which trees to plant where and how to monitor)
 - Improve the value of citizen science through the provision of tools and direction on how to ensure alignment of citizen monitoring with agency monitoring.
- 2.3 DOC, regional council biodiversity managers, and private funders (where willing) to work together to review funding application forms and processes in order to:
 - Standardise their structure, as far as appropriate
 - Simplify them
 - Move to an online format
 - Ensure that anticipated ecological outcomes, details of methods to achieve those outcomes, and how success will be assessed (monitoring and evaluation) are specified.
- 2.4 When making funding decisions on community conservation proposals national funding agencies should:
 - Preferentially align funding with national conservation priorities and conservation priorities identified in a regional biodiversity strategy
 - Consider supporting non-aligned projects that are important to the community, including tangata whenua, and which, while not priority matters, will contribute to national priorities and the objectives of the relevant Regional Biodiversity Strategy.

3. Support landowners and land managers

Objective: Private landowners and land managers are supported to protect and enhance indigenous biodiversity on their properties.

Funding for biodiversity actions on private land

Much of New Zealand's remaining biodiversity is on privately owned and managed land, meaning that landowners have a vital role in ensuring that Aotearoa New Zealand's indigenous biodiversity thrives. Strong partnerships with landowners and meaningful support and incentives to help them manage indigenous vegetation and habitats on their properties will be critical to go beyond maintaining biodiversity and to achieve restoration and enhancement.

In rural landscapes, indigenous biodiversity is present at a farm or other enterprise scale and not only in identified significant natural areas; they are often part of a complex and dynamic mosaic which may include mixed indigenous and exotic vegetation and successional communities at different stages. Exotic flora can also provide habitat for indigenous plants, animals and insects, even in highly modified landscapes. The co-existence of indigenous biodiversity in these landscapes represents an exciting opportunity to continue to develop land management techniques that maximise both economic and biodiversity benefits.

Managing activities on private land to achieve biodiversity gains requires significant investment, often beyond the means of private landowners. There is currently very limited funding available to assist landowners for projects that have biodiversity benefits including the necessary ongoing maintenance. The Community Conservation Fund is one funding source but it appears to be weighted towards community group or charitable trust applicants and should be made more readily available to private individuals.

The benefits of the QEII National Trust and Ngā Whenua Rāhui Fund in supporting the protection of indigenous biodiversity on public and Māori-owned land respectively cannot be overstated. QEII covenants alone protect more than 180,000 ha of private land and play a critical role as a refuge for some of New Zealand's rarest and most endangered biodiversity and ecosystems. Yet demand for these covenants outstrips the resources of these organisations to facilitate them and there is a shortfall in funding to provide ongoing support such as for maintenance. Furthermore, when landowners do establish these covenants on their properties, they are often still required to pay rates on the covenanted land (some councils provide rates remission but others do not). This does little to encourage or incentivise participation in these programmes and sends a negative signal about the public benefit of covenanting land in perpetuity. While there is some legal ambiguity surrounding the rateability of covenanted land under the Local Government (Rating) Act 2002, the BCG's interpretation of the intention of this legislation is that QEII and Ngā Whenua Rāhui covenanted land is non-rateable.

A range of funding mechanisms exist to assist with the costs of indigenous biodiversity protection on private land. The tax system could be used to provide powerful incentives to retain indigenous cover on land holdings with a mixed production/protection model. The BCG has not had the opportunity to explore such tax arrangements in detail, but is aware that tax rebates, depreciation schemes and similar methods are regularly used internationally.

Payments for ecosystem services (simply defined as the benefits people and societies derive from the natural environment) is another opportunity. As biodiversity declines, the functioning of ecosystems destabilises which, in turn, puts at risk the flow of related benefits, such as the provision of food and clean water, mitigation of natural disasters, and physical, mental and spiritual wellbeing. This in turn affects the long-term viability of economic activities and human wellbeing. The ecosystem services approach seeks to assign a value to the benefits provided by ecosystem services, so that they can be better incorporated into decision-making. Placing a value on ecosystem services can provide greater recognition of the range and amount of benefits that nature provides and can lead to an improved understanding that society and the economy depend on nature and the socio-economic benefits of ecosystem services. Conversely, a requirement to pay for loss of ecosystem services can dis-incentivise activities, designs, or operational methods which result in biodiversity degradation or loss. This recognition incentivises protection of ecosystems (and thus biodiversity) and the services provided by them. Taking an ecosystem services approach to biodiversity protection could:

- Promote and incentivise the ongoing conservation, restoration and sustainable use of biodiversity due to the critical role played in the provision of ecosystem services
- Make trade-offs in decision-making more explicit
- Create an innovative source of funding for biodiversity protection.

Biobanking is a systematised market measure for delivering conservation gains required to address the ecological impact of a development through the 'trading' of biodiversity values. One side of the market is the 'biobank' in which conservation projects are held for sale to development interests, and maintained and enhanced in perpetuity at the developers cost. On the other side of the market are development interests which can buy a conservation project from the biobank to offset or compensate for the impacts of that development. Such a system can work to incentivise landowners to actively enhance or restore indigenous biodiversity, through providing a return for that work. This has particular resonance in respect of Māori land, much of which retains some indigenous cover or is difficult to develop. A biobank system can also work to ensure that promised gains are delivered and delivered ahead of the loss that occurs.

Crucial to remember is that biobanking comes with significant risks. Despite there being some good international examples, overall it has a history of failure or poor biodiversity outcomes. This is ultimately because biodiversity is non-fungible (meaning one attribute cannot readily be traded or exchanged). Another reason is that biobanking can have the effect of 'locking in' loss through the setting of an expectation that any development can go ahead provided a 'biobank' transaction is used to offset the loss. Analyses of international examples shows the efficacy of a biobanking regime is intrinsically linked to the robustness of the underlying biobanking system and the accuracy with which it ensures losses and gains are equivalent, and clarity of the overall policy framework in providing direction around appropriateness of offsets or compensation.

To date biobanking has not made a formal entrance into New Zealand but there is interest in its potential to effect better outcomes. An initial feasibility study was undertaken in 2017.²³ The BCG considers that any proposal to implement it as a widely-used tool should be carefully researched and evaluated. A successfully run pilot is a critical precondition to wider use.

Recommendations

- 3.1 Treasury, the Tax Working Group, and IRD to investigate opportunities within the tax system, such as tax rebates or tailored depreciation schemes, to incentivise retention of indigenous cover on private land where this would support the maintenance and enhancement of indigenous biodiversity.
- 3.2 The Ministry for the Environment and DOC, with the assistance of Treasury, to continue investigating new funding mechanisms to assist with the cost of indigenous biodiversity protection on private land, including:
 - Valuation of and payments for ecosystem services
 - Valuation of and accreditation for ecosystem services/presence of indigenous biodiversity as part of a product/operation certification scheme
 - Biobanking
 - Funds targeted at specific areas and/or specific outcomes.
- 3.3 Funding should be available to private landowners for enhancement works. It would be prudent to review the Community Conservation Fund application criteria and methodology for assessing applications and to amend these if necessary to direct the fund towards applications with the best indigenous biodiversity gains with a neutral/equal approach to whether the application is made by a private individual, community group, or other eligible entity.
- 3.4 Central government to review the resourcing of covenanting bodies, including QEII National Trust and Ngā Whenua Rāhui to ensure they have sufficient resources to:
 - Meet demand, including for necessary maintenance, and
 - Undertake effective monitoring, reporting, and where necessary, enforcement.
- 3.5 Land that is subject to a QEII covenant or Ngā Whenua Rāhui kawenata (covenant) be exempt from rates and legislation be amended accordingly.

Supporting primary sector environmental management initiatives

In response to changing expectations of markets (demanding proof of responsible performance), and growing concern amongst communities (who ultimately provide the social license to operate), various primary sector organisations have implemented, or are establishing environmental management initiatives. These initiatives generally involve producers committing to certain standards and/or undertaking certain actions. The nature of commitments to these programmes is varied, with some being purely voluntary, while others are overseen by international accreditation bodies and forming part of contractual obligations or market access requirements.

²³ Environmental Defence Society (2017). 'Banking on Biodiversity – The feasibility of biodiversity banking in New Zealand'.

These schemes have varying degrees of sophistication and the biodiversity-related obligations are similarly varied. Several rely on the concept of property-specific management plans where environmental objectives and risks are identified, and management practices to respond to those risks set out in the plan. Examples include:

- Horticultural producers who must comply with NZGAP requirements (a quality assurance programme with an environmental module).
- Independent third party certification such as the Forest Stewardship Council (FSC), which has a certification/product labelling scheme that allows wood and wood-based products to be FSC labelled, providing assurance that certain environmental management/sustainability requirements have been met in forest management.
- Beef and Lamb NZ recently instituted a system of supporting dry-stock farmers to develop environment plans to identify and plan responses to particular on-farm environmental risks.
- Fonterra is currently assisting farmers to produce (across its supplier base) around 1000 Farm Environment Plans per year – with farmers opting in on a voluntary basis and gaining expert support through Fonterra's sustainable dairy advisers. The primary aim is to support farmers to identify and manage environmental risks on farm as opposed to biodiversity gains.

As farm environment plans (of various forms) are increasingly required by regional councils for water and nutrient management purposes, many farmers will need to develop them to comply with regional rules. There is a real opportunity for the development of these plans to include biodiversity objectives and associated monitoring and reporting obligations.

Recommendations

- 3.6 The Ministry for the Environment and Ministry for Primary Industries to investigate:
- Use of industry-led tools to enhance the profile of biodiversity in primary sector management
 - Implementation of property-specific management plans that are personalised to be meaningful to the farm business and provide for (amongst other things) biodiversity outcomes at the property level, in a way which complements regulation.

Support for biodiversity actions on Māori land

Improved protection and enhancement of indigenous biodiversity on Māori-owned land will provide biodiversity benefits as well as opportunities for restoring the relationships of whānau, hapū and iwi with their whenua, in accordance with their kaitiaki role.

Around 80 per cent of the 1.3 million ha of land administered under Te Ture Whenua Māori Act 1993 is steep with moderate to severe limitations for conventional agricultural use, making it attractive for the management of indigenous biodiversity. These areas are in the 'less

threatened, better protected' land environments²⁴ which, despite not falling in the most threatened category, is nonetheless important to protect nationally. However, Māori land retains a disproportionate percentage of indigenous vegetation compared to other land. Up to 50 per cent of the land cover on Māori-owned land comprised of indigenous vegetation, meaning that limitations on the use and development of land this is likely to disproportionately impact Māori compared to other private landowners.

There is a lack of statutory coherence relating to biodiversity management incentives for Māori land owners. Historically, the focus of government interventions is limited to 'increasing productivity' rather than the provision of mechanisms to enable co-benefits associated with biodiversity management. Māori land is subject to restrictions and protections that do not apply to other privately-owned land. Barriers to land use change and biodiversity maintenance include: fragmentation of ownership, restrictions on sale, lack of access to bank lending, inefficiencies of legal processes in comparison to privately owned non-Māori land, and lack of coordinated access to land information and support for owners across agencies and service providers.

On some Māori land parcels, part of the parcel is in productive use (often forestry) while other parts are retained in indigenous cover. This mixed-use model provides opportunities for incentivising retention of indigenous vegetation cover in order to maintain biodiversity. Incentivising active protection (e.g., predator control) on Māori land not only protects vulnerable species but also supports the involvement of tangata whenua in the care of their taonga, and may provide employment opportunities.

Recommendations

- 3.7 In investigating incentive opportunities within the tax system under Recommendation 3.1, Treasury, the Tax Working Group and IRD should examine incentives for retaining Māori land in indigenous cover.
- 3.8 In undertaking its review to ensure alignment of current programmes in supporting indigenous biodiversity gains under Recommendation 1.6 MfE should examine how those programmes do and can be amended to support indigenous biodiversity protection on Māori land.
- 3.9 Central government to enhance support services for indigenous biodiversity protection on Māori land by:
 - Redesigning Māori land services (currently administered by the Māori Land Court) to improve access to biodiversity knowledge and networks
 - As per Recommendation 3.4 review funding available to Ngā Whenua Rāhui to expand the national network of kawenata.

²⁴ This refers to the Threatened Environments Classification: Manaaki Whenua - Landcare Research, Threatened Environments Classification <<https://www.landcareresearch.co.nz/resources/maps-satellites/threatened-environment-classification>>

4. Improve monitoring, information and knowledge

Objective: Nationally consistent approaches to monitoring, reporting, data management and prioritisation to improve biodiversity management decision-making.

Consistent and comprehensive monitoring and reporting

To maintain indigenous biodiversity in Aotearoa New Zealand, it is important to understand current state, trends, and pressures on indigenous biodiversity. Environmental monitoring is a key component to enable us to better understand the environment and involves the collection of long-term data that informs us about the condition of our natural resources. The information collected allows us to assess whether environmental quality and our indigenous biodiversity is improving, remaining the same, or becoming degraded.

State of the environment monitoring:

- Builds on and provides information on the environment which helps inform the public, stakeholders and our international partners about the condition of the environment, key pressures, and supports decision-making on resource allocation
- Measures the efficiency and effectiveness of policies, rules and methods, which helps to inform decision-makers on how well policies are working in practice.

It is difficult to collate and interpret the information we have available to form a comprehensive national-level assessment of state of indigenous biodiversity because of:

- Data gaps
- Inconsistent monitoring methods across councils and between councils and other actors (e.g., citizen science generated by individuals or community groups)
- Lack of a standardised recording and reporting framework across councils and between councils and other actors
- Inconsistent methods for ecological classification and selection of management approaches that are important in assessing the effectiveness of policy intervention and informing regional and national prioritisation or where to best invest management effort
- Data acquisition difficulties.

There is also a poor understanding of what the public wants to know about indigenous biodiversity and how they want to receive the information. This is an important component of an effective reporting system and should complement the information needed to meet agencies' statutory reporting requirements.

These issues are due in part to a lack of standardised, mandatory monitoring and reporting requirements, and in part to a lack of resources (particularly in the case of smaller councils).

The BCG considers there is an essential need for the environment to be monitored and data to be collected and reported in a consistent form. There has been significant effort by regional councils and DOC, with the help of Landcare Research, to achieve that outcome, most notably through the development of the Tier 1 and Tier 2 biodiversity monitoring frameworks which involve the measurement of specified biodiversity indicators:²⁵

- Tier 1 comprises broad scale monitoring for national context. It is underpinned by a systematic sampling programme involving regular assessment of a selection of indigenous species and pests at locations 8 km apart and spaced evenly across a landscape
- Tier 2 comprises detailed monitoring of managed places and species on land, fresh water, and in the ocean to report on management effectiveness. It involves consistent, rigorous monitoring of the outputs (management results) and outcomes (management achievements) of specific activities on land, in fresh water, or in the marine environment.

These are currently being applied by DOC in its indigenous biodiversity monitoring system on public conservation land, as well as Tier 3 monitoring which comprises intensive monitoring of key sites for research purposes. Uptake by local authorities in monitoring biodiversity on private land is inconsistent.

The BCG considers that consistent national monitoring of biodiversity, in particular in significant natural areas, on both public and private land is essential and that Tier 1 and Tier 2 are the best available tool. It understands that regional councils and DOC are supportive of this proposal, but there are some issues that need to be addressed before consistent national monitoring of biodiversity can be implemented:

- Tier 1 implementation is currently limited by complexity and cost. Questions are also raised over whether the costs and benefits fall fairly, given the reporting outputs are designed for multiple reporting levels (e.g., international, national and local)
- Tier 2 monitoring data is not shared well or reported anywhere. Use of a standardised monitoring methodology and reporting is also an issue
- The Tier 1 and Tier 2 framework is not as consistently applied in the freshwater or coastal environments as in the terrestrial environment.

Recommendations

- 4.1 The Tier 1 and Tier 2 monitoring frameworks are adopted and applied by local authorities in monitoring and reporting on indigenous biodiversity on private land. To enable this to occur:
- DOC in partnership with Landcare Research must review the Tier 1 and Tier 2 frameworks to:
 - Ensure application to the freshwater and marine environments
 - Develop guidance for application to the freshwater and marine environments
 - Develop a standardised monitoring information recording and reporting template to be used across all land tenures

²⁵ See: <https://www.doc.govt.nz/our-work/monitoring-and-reporting-system/>

- Ensure Tier 1 and Tier 2 frameworks are fit for application on private land, in particular in terms of alignment with the location of significant natural areas
- The Department of Conservation, in its role as the lead agency for indigenous biodiversity management (as per Rec 1.1), to establish a Tier 1 and Tier 2 Establishment Team, tasked with assisting local authorities with deployment
- Regional and district councils must work together to establish a monitoring and reporting plan which identifies Tier 1 and Tier 2 monitoring site locations and specifies which entity is responsible for which sites, and which entity is to oversee collation and synthesis of recorded data
- Regional councils work in collaboration with landowners and land managers to implement monitoring and to share information
- Central government to consider funding a proportion of Tier 1 monitoring by regional councils on private land.

Development of a national biodiversity database

Policy makers and researchers need better access to a national picture of indigenous biodiversity to improve decision-making, make operational processes more efficient, increase opportunities for collaboration between organisations, and to incentivise new research opportunities to further inform policy development.

Aotearoa New Zealand's current data on indigenous biodiversity suffers from two key deficiencies:

- a) It is incomplete. This is discussed above and recommendations relating to increased monitoring are recorded.
- b) Available data is not always comparable because different schemas and standards are used between local authorities, and between local authorities and other indigenous biodiversity management entities. This undermines, for example, the use of data for purposes other than that for which it was specifically collated or outside the area in which it was collated, such as for national reporting.

While there has been attempts to develop data standards and schemas that are interoperable, an ongoing coordinated and well-resourced national commitment has not been sustained. The Terrestrial and Freshwater Biodiversity Information System Programme (TFBIS) outputs have recently been incorporated into the New Zealand Organism Register (nzor.org.nz) which has a core objective to maintain a compilation of all organisms relevant to Aotearoa New Zealand. However inadequate resourcing has hindered the next phase of establishing an interoperable biodiversity data platform specifically able to federate biodiversity data.

These deficiencies are inhibiting the development of a clear and comprehensive picture of the state of Aotearoa New Zealand's indigenous biodiversity. This in turn compromises the quality of policy and undermines the ability of policy makers to counter criticism of the need for controls in order to protect and maintain indigenous biodiversity. The result is the current continued trajectory of decline, despite an increased active management effort.

Change is urgently required to move to a system where data collected by one entity is comparable to data collected by another entity, and which is then able to be exchanged and collated to provide a national picture.

The first part in making this happen is ensuring that everyone is monitoring and measuring the same thing. The second part is developing appropriate schemas and standards for those who collect, file, and analyse data on indigenous biodiversity, and requiring those to be consistently used. Development of nationally applicable schema and standards will require an ongoing input from central government, local government, and other organisations that are undertaking indigenous biodiversity monitoring, in order to ensure they are fit for purpose across multiple environments and uses.

A shift to consistently collected, filed, and analysed data across Aotearoa New Zealand will provide the springboard for the development of a decentralised, distributed, and publicly accessible data system that provides a comprehensive picture of indigenous biodiversity and ecosystems across Aotearoa New Zealand, or incorporation of such a database as a layer or layers into a national platform in a way to similar to LAWA (Land, Air, Water Aotearoa).

Recommendations

4.2 The Ministry for the Environment and Statistics New Zealand, in collaboration with DOC and regional councils (in the first instance the Regional Bio-Managers Group), should lead a staged work programme with the ultimate output being a decentralised, distributed, and publicly accessible data platform that provides a comprehensive national picture of indigenous biodiversity and ecosystems. This work programme should:

a) Begin with the development of:

- Standardised data formats that will be used by those who collect, maintain, and analyse data on indigenous biodiversity and ecosystems
- An agreed schema for indigenous biodiversity data and ecosystems
- Build on existing processes as detailed in the New Zealand Organism Register so to achieve an appropriately detailed data dictionary for indigenous biodiversity and ecosystems.

This process must:

- Be undertaken working with the decision-makers, managers with data custodian responsibilities, and data collation and management staff from the organisations with statutory responsibility for biodiversity functions as well as covenanting entities, and key indigenous biodiversity research institutes such as Landcare Research and NIWA
- Cover and capture all data sources including mātauranga Māori and citizen science.

- b) Investigate how to ensure use of schema and standards developed under (a) can be made mandatory, for example through a National Environmental Monitoring Standard, and take the necessary steps for that to occur.
- c) Develop a decentralised and distributed data platform into which data collected used the schema and standards developed under (a) can be collated, or incorporate that data into an existing appropriate data platform.
- d) Ensure that the data platform is publicly available.

Identification of wetlands

Wetlands are hotspots for indigenous biodiversity. They are also critically important because of the ecosystem services they provide for the wider environment and for people, including flood protection, improving water quality, and resilience to drought. The preservation of their natural character is a matter of national importance under the RMA and protecting the significant values of wetlands is a requirement under the National Policy Statement Freshwater Management (NPSFM).

Yet wetlands continue to be lost as land-use intensifies in rural areas and urban land expands. Loss and damage has been so pervasive that today only 10 per cent of the historical extent of wetlands remain. In many areas that percentage is even less; in Hawke's Bay for instance only 2 per cent of wetlands remain.

A key reason for the loss of wetlands is that their location often overlaps with where people live and work and because, until recent decades, there has been a lack of understanding and appreciation of their importance. Another key reason is the lack of specific direction in the RMA and NPSFM in terms of how to achieve the objectives of protection and preservation. Defining the physical characteristics of wetlands, or a nationally consistent process and criteria for spatially defining the extent of wetlands, for example, is lacking (as recently noted by the Land and Water Forum in its 2018 Report). This has resulted in regional inconsistency and disagreement in approaches to wetland identification and management.

The NPSIB includes a policy relating to wetlands. This requires wetlands to be identified using the specific process set out in the NPSIB's appendices, recognises the significant values of wetlands that relate to indigenous biodiversity, and requires that loss of and degradation to those wetlands is avoided.

Identification has proven to be particularly controversial around the country and the BCG considers it is important for any wetland identification criteria and methodology to focus on wetlands that retain ecological integrity (i.e. they function like a wetland) as opposed to an area of paddock that is wet from persistent rain. The criteria and methodology for identification of wetlands has been carefully developed with the help of experts to achieve that outcome. The proposed approach is underpinned by analysis of the indigenous vegetation present, but sometimes, typically in determining the margins of a wetland, reference to analysis of soil and hydrology is required. Vegetation analysis and soil analysis tools specific to Aotearoa New Zealand have been developed and are used widely. A hydrology tool specific to New Zealand conditions has not yet been developed, and instead a tool developed in the United States is used. While the tools available are adequate for wetland identification, it is important that a full suite of tools specific to New Zealand conditions is developed to ensure the identification process is as robust and accurate as possible.

As wetlands are identified across the country it is important that their extent, location, state, structure, and significant values are recorded in a systematic and standardised way, and that a wetland inventory is established and maintained. This is necessary to monitor change over time, and to make comparisons with historic extent. Development of a wetland inventory will also assist Aotearoa New Zealand in fulfilling its obligations as a signatory to the Ramsar Convention on wetlands, through providing a database against which decisions on how to achieve the 'wise use' anticipated by the Convention, and to maintain the ecological character of wetlands, can be made.

Recommendations

- 4.3 Ministry of Business, Innovating and Employment to fund Landcare Research to complete development of the wetland hydrology assessment tool in order to complete the suite of tools required to effectively identify and assess wetlands.²⁶
- 4.4 The Ministry for the Environment and DOC to:
- a) Establish and oversee an online wetland inventory to record all wetlands identified in accordance with Policy 13 and Appendix 3 of the NPSIB, including: map of location, extent, state, structure, significant values, and other information identified as necessary.
 - b) Through the Biodiversity Strategy review require that all regional councils record all wetlands identified in their region in the inventory.

²⁶ The other two tools being the vegetation assessment tool (Clarkson et al, 2014) and the soil assessment tool (Fraser et al, 2018). All tools are based on the USA Army equivalent models.

5. Align institutional frameworks, policies and regulatory tools

Objective: Alignment of central government decisions and direction to maximise benefits and to minimise risks to indigenous biodiversity.

As discussed in Section 1, there is an urgent need for an overarching leader of Aotearoa New Zealand's indigenous biodiversity management system, and the BCG recommends that DOC assumes this role. It is also essential that government policies are aligned across agencies to achieve (or at least not undermine) biodiversity benefits or co-benefits, and to ensure decisions on non-biodiversity specific activities do not inadvertently result in biodiversity loss or degradation. This should include alignment with the imminent refresh of the National Biodiversity Strategy. This is a critical part of central government showing leadership in maintaining indigenous biodiversity and supporting it to thrive. In Section 1, the BCG recommended that the existing cross-Ministry indigenous biodiversity working group be reinvigorated and tasked with reviewing existing programmes across government to ensure alignment in achieving positive outcomes for indigenous biodiversity, and to develop protocols to ensure the natural environment is factored into all future decision-making. This section of the report focuses on specific areas where the BCG has considered how each can be better organised and orientated to achieve benefits for indigenous biodiversity.

Many non-biodiversity specific government programmes can be modified without difficulty to secure biodiversity co-benefits, and existing functions and powers can be reoriented to ensure there is a full toolbox for controlling impacts on indigenous biodiversity. Key opportunities exist in the following areas:

- Bylaw powers
- 1 Billion Trees Programme
- Carbon sequestration schemes
- National Environmental Standards for Plantation Forestry 2018
- Biosecurity Act
- Wild Animals Control Act
- New riparian planting
- Implementation of the Waitangi Tribunal's Wai 262 Report recommendations.

Bylaw powers

Bylaws can act as an effective tool for local authorities to control effects of people and animals on indigenous species and their habitat. Some activities that are theoretically able to be managed under the RMA but are not readily suited to its plan and consent-based controls. Particular examples are the public's use of vehicles or horses on beaches, and control of dogs and (non-feral) cats. Vehicles and horses both have the potential to cause damage to beach habitats, such as the nesting areas of shorebirds and seabirds, and coastal vegetation. Dogs

and cats pose a threat to kiwi, lizards and other fauna if not properly controlled or kept away from their habitats. It is clear that powers under the Dog Control Act 1996 can be used where dogs are a danger to indigenous wildlife. However, non-feral cats, and the use of horses or vehicles on beaches are normally dealt through bylaws under the Local Government Act 2002 (the Reserves Act also contains bylaw-making powers specific to reserves). As discussed in Section 1, the protection of indigenous biodiversity is not an objective of the Local Government Act and, in general, bylaws must be for the purpose of controlling a nuisance rather than addressing an environmental issue.

The change to the RMA in 2003 to make maintenance of indigenous biodiversity an explicit function of regional and territorial authorities significantly raised the profile of biodiversity and resulted in improved measures to maintain it. A similar amendment to ensure that bylaws can be used to control impacts on species, habitats and ecosystems and to raise the profile of biodiversity in decision-making under the Local Government Act could bring about a similar step-change.

Where bylaws are used, enforcement remains an issue. Bylaws may be enforced through prosecution in the District Court but this is a complex, lengthy and expensive process that may not be justified by the nature of the breach. Breaches of bylaws may be specified by regulation made through Order in Council to be infringement offences, in which case infringement fines may be imposed. Access to a full range of enforcement tools is likely to make enforcement of bylaws for biodiversity objectives more effective.

Recommendations

- 5.1 The Department of Internal Affairs to amend sections 145 and 146 of the Local Government Act 2002 to ensure that bylaws may be made for the purpose of protecting indigenous species and ecosystems in public places and consider whether constraints should be placed on this power.
- 5.2 The Minister of Local Government to recommend regulations to ensure that biodiversity-related bylaws may be enforced by infringement notice.
- 5.3 Consider whether additional specific enforcement provisions would be required for the purpose of protecting biodiversity in public places.

1 Billion Trees programme

The 1 Billion Trees programme has the potential to achieve significant biodiversity gains, as well as gains for climate mitigation, freshwater quality, and employment. However, it also carries risks for biodiversity. In order to ensure the BCG's recommendations were provided to Ministry of Primary Industries/Forestry New Zealand Te Uru Rākau in time to be considered in developing the overarching criteria for decision-making on the 'right tree in the right place', they were provided to the Ministry on 14 August 2018. Those recommendations and explanatory text are set out below.

The Group has identified the 1 Billion Trees programme as a key opportunity for achieving biodiversity gains. It also presents risks for biodiversity.

You have advised that the criteria for guiding selection of what is planted, where, and when, as part of the 1 Billion Trees programme is to be finalised in September, and that the recommendations from the Group on what those criteria should be, should be provided

now to ensure there is opportunity for them to be incorporated (as opposed to October when its final report is due). In response, this letter sets out the Group's recommendations with supporting reasons.

Recommendations & reasons

The 1 Billion Trees Programme has the potential to achieve significant biodiversity gains, as well as gains for climate mitigation, freshwater quality, and employment. It also carries risks for biodiversity if planting decisions are not carefully managed.

Gains will be achieved through planting indigenous species, targeting restoration of Aotearoa New Zealand's most biodiversity depleted environments (those where there is less than 10% cover remaining) and of areas of high biodiversity value that also secure wider environmental outcomes like riparian networks and wetlands, increased ecosystem services, and contributing to connectivity and landscape-scale restoration. Some indigenous planting may be temporary for commercial harvest. But permanent planting can secure economic return too, through conservation jobs and through increasing the type, location, quality, and extent of environments available for people to visit and experience. These co-benefits were recently recognised by Prime Minister Ardern and Minister Whitiri in the 13 August announcement of increased funding for the 1 Billion Trees programme.

Risks arise if decision-makers fail to consider what is being planted, where, and the impacts of climate change. Pest species must be avoided. Planting of exotic forestry species should not occur in areas where wilding spread is a problem or in areas with existing indigenous vegetation or habitat that contributes to maintenance of indigenous biodiversity. Failure to consider how climate change will impact rainfall, temperature, and soil risks planting species that will not be able to survive long term. Even planting indigenous species can have bad outcomes if the wrong species is planted.

The Group considers there is a real opportunity to secure biodiversity co-benefits (maximising biodiversity gains and minimising biodiversity risks) and associated ecosystem services from new planting under the 1 Billion Trees programme and recommends that the criteria for guiding selection of what is planted, where, and when, should include the following:

- New plantings should:
 - not be restricted to trees but include other indigenous vegetation;
 - include a significant indigenous component;
 - focus on restoration of Aotearoa New Zealand's most biodiversity depleted environments and riparian networks;
 - support achievement of ecological connectivity and landscape-scale restoration;
 - support achievement of regional landscape-scale indigenous restoration strategies or plans where they exist.
 - ensure no pest species are planted, and ensure any exotic species are appropriately located. In particular, that new exotic plantation forestry is not established where it will increase the risk of wilding incursions into areas with existing indigenous biodiversity value, or in areas with existing indigenous vegetation or habitat that contributes to maintenance of indigenous biodiversity.
 - carefully consider whether only indigenous species that are native to the environment in which the planting is occurring should be used.
 - ensure that the foreseeable impacts of climate change on the environment in which the planting is occurring is considered as part of species selection.

Carbon sequestration schemes

There are a number of mechanisms in Aotearoa New Zealand that landowners can use to obtain finance and New Zealand Units (carbon credits) for afforestation efforts: the Emissions Trading Scheme (ETS), the Afforestation Grant Scheme (AGS) and the Permanent Forest Sink Initiative (PFSI).

To date forestry planting under the ETS has favoured commercial planting for harvest of predominantly exotic forest, with 300,000 ha of forest land registered in the ETS, of which only 25,000 ha is indigenous (8 per cent).²⁷ Estimates are that 10,000 ha of post-1989 native forest land would sequester 65,000 tonnes of carbon dioxide equivalent (CO₂e) annually over an average of 50 years, and would be eligible to earn 65,000 NZUs per year under the ETS.

Extending the scope of sequestration interventions that can generate eligible carbon credits under the ETS has the potential to achieve significant biodiversity co-benefits. The current ETS rules make it difficult to receive carbon credits for any planting other than large-scale forestry that has been 'actively' planted (both temporary and permanent, and indigenous or exotic). This means that forest and other vegetation regeneration initiatives that achieve both carbon sequestration and biodiversity benefits do not earn carbon credits under the ETS or other schemes. Such initiatives include:

- Native forest regeneration on marginal land. Difficulties include costs of assessment, proving eligibility for carbon credits (i.e. proving that the forest has regenerated since 1989), and with measurement of regenerated areas.²⁸
- Riparian planting. Most riparian planting is not eligible to earn carbon credits because the planting area is does not meet the 30 metre width requirement for the ETS.²⁹ Many of these areas are now required to be fenced for water quality purposes which significantly reduces the opportunity costs of also planting the fenced off area, and, with the right incentives, increases the likelihood of this planting occurring.
- Reconstruction of drained wetlands. As above, the width restrictions or restrictions on density and height of planting prevent credits from being obtained.³⁰

Extension of the ETS would also provide significant opportunity for economic and biodiversity gains on Māori land through planting and ecosystem reconstruction. For example, current statistics indicate that the carbon that would have been stored on Māori land could have potentially earned between 298,400 to 1 million carbon credits, worth between \$5.9 million and \$19.8 million.

The AGS and PFSI provide alternative mechanisms through which landowners can achieve carbon credits for planting trees. Under the PFSI land that has been forested since 1990 and complies with the area size and tree density and height thresholds is eligible for carbon credits. Forests registered under the PFSI are subject to a protective covenant theoretically in perpetuity but which is actually subject to a review after 50 years.³¹ Under the AGS

²⁷ Carver T., Kerr S., (2017). *Facilitating Carbon Offsets from Native forests*. Wellington: Motu.

²⁸ Ibid.

²⁹ Ibid; Land & Water Forum (2018). 'Land and Water Forum advice on improving water quality: preventing degradation and addressing sediment and nitrogen'.

³⁰ IAG Science Advisory Panel (2018). 'Hutia te Rito' (Paper for Biodiversity Collaborative Group).

³¹ Ministry for Primary Industries (2015). 'Guide to the Permanent Forest Sink initiative'.

landowners can apply for a funding grant of \$1,3000 per hectare for new small to medium-sized forests (5 ha-300 ha) for the purpose of reducing soil erosion, improving land productivity, storing carbon, and improving water quality.³² Currently both schemes allow for the planting of exotic forest and place height and size restrictions on the type of vegetation that can be planted. The draft NPSIB would require regional councils to set indigenous cover targets in indigenous biodiversity depleted environments (those with less than 10 percent indigenous cover). Amendments to the AGS and PFSI to favour indigenous planting, in particular in environments that currently retain the least indigenous cover, and to increase the types of eligible indigenous species could result in significant co-benefits for biodiversity that contribute to achievement of those indigenous cover targets.

The government's commitment to scaling up Aotearoa New Zealand's climate policy framework is an opportunity to review these mechanisms to maximise opportunities for carbon sequestration, and achieve co-benefits for biodiversity at the same time.

Recommendations

5.4 In order secure indigenous biodiversity co-benefits from planting for carbon sequestration MfE and Te Uru Rākau (or and Te Uru Rākau and the Climate Commission if established) should:

- Investigate additional carbon sequestration opportunities from indigenous planting (including riparian planting and wetland planting) which result in co-benefits for biodiversity, and make the necessary changes to the ETS for their incorporation.
- Make changes to the PFSI eligibility criteria to favour indigenous planting, favour planting in Aotearoa New Zealand's most biodiversity-depleted environments (<10%) and create additional sequestration opportunities.
- Make changes to the AGS eligibility criteria to favour planting of indigenous species.

Criteria will also need to be developed to ensure that the indigenous vegetation planted at any given location is appropriate for the specific environment.

Resource Management (National Environmental Standards for Plantation Forestry) Regulations 2017

Plantation forestry can provide buffering for and connectivity with areas of significant indigenous vegetation, and can assist in the natural development or reestablishment of additional indigenous vegetation areas along stream setbacks, non-productive and retired areas. The forests themselves provide habitat for many indigenous species, including Threatened and At Risk species, such as bats, lizards, invertebrates, and forest birds like kiwi and falcon. The forestry industry has protocols for managing these fauna, and there are over 1 million hectares of plantation forest certified by the Forest Stewardship Council (independent third party certification) which has many criteria, indicators and verifiers around fauna. Many plantation forests also benefit from predator control carried out by forestry companies, which greatly enhances their value as habitat. Plantation forestry is typically a 25 – 30 year cycle, and there are differing views as to its value as habitat as a result.

³² Ministry for Primary Industries (2018). 'Guide to the Afforestation Grant Scheme'.

The National Environmental Standard on Plantation Forestry 2017 (NesPF) provides a suite of rules for plantation forestry activities. It provides for indigenous vegetation clearance associated with plantation forestry, other than within significant natural areas (with two exceptions relating to incidental damage and clearance of vegetation overhanging forestry tracks). These rules recognise SNAs and wetlands. A further general indigenous vegetation rule constrains the circumstances and area of any indigenous vegetation clearance within the planted forest estate and identifies the circumstances and scale of indigenous vegetation damage that may occur. The NesPF also has rules to protect the nesting sites of At Risk and Threatened bird species, and rules to protect the spawning conditions for a number of indigenous fish species.

A review of the NesPF, focussing on wilding pines and fauna, is being undertaken at one-year post gazettal.

The NesPF states that rules in regional or district plans may be more stringent than the NesPF if the rule recognises and provides the protection of significant natural areas.

The NesPF states that new production forestry (afforestation) cannot occur in a significant natural area as a permitted activity (Reg 12). If new production forestry planting is proposed to occur within a significant natural area it is to be considered as a restricted discretionary activity, with the matters of discretion focusing on the effects on the areas significant values (Regs 16, 17). Any vegetation clearance required prior to afforestation is out of scope of the NesPF and covered by applicable regional or district plan rules. The predominant focus of the NesPF is on established production forestry. It specifies rules for activities undertaken as part of the operation of established production forestry (including activities as part of the ongoing operation of the production forest, harvesting, and replanting) seeking to ensure that activities are managed in a way that:

- ensures measures to control forestry's effects on indigenous biodiversity are targeted to appropriately minimise adverse effects, and are cost-effective; but
- does not result in perverse outcomes, such as discouraging predator control or discouraging plantation afforestation or reforestation in appropriate locations.

A key issue is that the NesPF does not provide for circumstances where plantation forestry itself is designated a significant natural area. While in most situations indigenous vegetation (including understorey, areas of failed planting/windthrow) is unlikely to be significant indigenous vegetation, the plantation forest does commonly provide habitat for threatened and at risk species. If this were to result in the forest being designated as an SNA some activities currently permitted under the NesPF would require consent due to permitted activity rules specifying that the activity must not take place within an SNA without regulatory oversight (for example river crossings (Reg 43), and others may not occur as a permitted activity depending on how the requirements of the NesPF are interpreted (for example harvest (Reg 66, Sch 3). This could have the perverse incentive of discouraging predator control, discouraging the planting of longer rotation or native species, encouraging browsing of the understorey, to reduce the value of the forest as potential habitat.

A related issue is that the NesPF deals with the effects of forestry on spawning fish and nesting birds but does not address effects on other biodiversity such as non-nesting birds, bats, and lizards.

FOA's suggested approach to these issues is to exclude application of the NPSIB's Appendix 1 significant natural area identification criteria to production forests, and for Appendix 1 to state that a production forestry cannot be a significant natural area. The majority of the Group does not agree to this because areas where threatened species live are significant regardless of human use of the area and for the reasons set out in the Covering Report (in summary that identification of section 6 (c) significant areas and their management are two separate steps, where identification is a technical, expert exercise based on ecological attributes, and management and human use (new and existing) is a separate issue addressed via policy. The rest of the Group has endeavoured to address these issues through the NPSIB (see Covering Report) and considers that the review of the NESPF, beginning in early 2019, provides an appropriate opportunity to address these issues. The Group has made recommendations on key issues that the NESPF review should investigate.

Recommendations

5.5 As part of the one-year review of the NESPF:

- a) Definition of indigenous vegetation: As part of the NESPF review, consider aligning the NESPF definition with the NPSIB definition. Consider interaction with the approach to plantation forest understorey from NESPF reg 93(2).
- b) Regulation 93 (Indigenous vegetation clearance rule) – as applied to fauna significant natural areas: Consider amending Regulation 93 so that in areas of plantation forestry that meet significance criteria due to the presence of mobile fauna, indigenous vegetation clearance associated with harvesting is provided for, subject to controls that ensure that adverse effects on Threatened or At Risk fauna are avoided, remedied or mitigated.
- c) Consider amending Regulation 102 of the NESPF so that mobile Threatened or At Risk fauna in plantation forests is protected through controls to avoid or mitigate adverse effects on such Threatened or At Risk fauna. Controls should be effective but practical means to manage effects while recognising the purpose for which the plantation was established. Any proposed new controls should ensure that adverse effects on Threatened or At Risk fauna are avoided, remedied or mitigated:
 - Determine the details of these controls as part of the NESPF review, seeking input from relevant experts (e.g. forest managers, ecologists, Kiwis for Kiwis).
 - Controls should be effective but practical means to manage effects while recognising the purpose for which the plantation was established.
 - Note that controls will likely differentiate between static species and mobile fauna (e.g. some highly threatened species may require protection in situ, where-as mobile species may be protected through measures such as ensuring forestry workers are able to identify the presence of these species and avoid harvesting where they would be hurt or killed, and/or providing alternative refugia where necessary.
- d) Provide for additional ancillary rules and/or Harvest Plan requirements to implement those measures.

The BCG would like to emphasise that this is not a comprehensive review of the suitability of the NESPF to address the positive and adverse effects of plantation forestry on indigenous biodiversity and is not expressing a view that the scope of the NES review should be limited to these matters.

Biosecurity Act

The Biosecurity Act 1993 was recently reviewed (in 2012) and provides for biosecurity interventions that advance biodiversity outcomes. This includes options for harmful organism or pest interventions at the regional level, including strategic programmes. Strategic programmes are: eradication, exclusion, progressive containment, sustained control and site-led management as may be included in a regional pest plan.

However, for a harmful plant or animal to be able to be included in a pest plan it must first meet the tests set out in the Act (focusing on cost-benefit analysis).

That means that not all harmful organisms will be subject to a pest plan with the associated access to interventions and rules (an example would be Old Man's Beard – an organism that is harmful to biodiversity but which is likely to be spread widely across a region making it highly unlikely to ever meet a cost-benefit test for region-wide control).

A core issue is that many harmful organisms can affect biodiversity values and the only legal/regulatory means to manage these species under the biosecurity Act is via 'site led' programmes which require specificity in location and the organism type. Owing to the targeted nature of these site led programmes, regional councils lose the flexibility to take measures to manage a range of harmful organisms posing a risk to biodiversity. This may not be an issue if voluntary intervention is justified and forthcoming, but if rules or public funding are required to secure long-term sustainable outcomes then statutory arrangements currently act more like a barrier than an enabler.

Recommendation

- 5.6 The Ministry for Primary Industries to investigate options to ensure that the Biosecurity Act can be used by regional councils with maximum flexibility so as to address threats to biodiversity with particular focus on removing barriers to the use of regulatory and funding tools for all strategic programme options. This includes, in particular, the cost-benefit test that applies to the identification of pests in regional pest plans, which should be revised to ensure that environmental costs and benefits are able to be fully considered even if they are not readily able to be monetised.

Wild Animals Control Act

The Biosecurity Act addresses risks associated with:

- Potential new incursions of species from overseas (i.e., managing biological risk control at the border and surveillance)
- Incursions (i.e., responses to eradicate unwanted organisms that are newly discovered to have breached border defences)
- Pest management (i.e., the control of unwanted organisms, declared as pests, that have established in Aotearoa New Zealand, including legacy pests).

As noted above, since 2012, the Biosecurity Act has a much clearer purpose in terms of pest management (one that more expressly recognises the role in biodiversity management).

However, the framework for managing biological risks to indigenous biodiversity is actually far more complex than just the Biosecurity Act and includes the Hazardous Substances Act 1996 (which amongst other things regulates the introduction of new organisms into Aotearoa New Zealand), the Wild Animals Control Act 1977 (WAC Act) and the RMA.

That creates some untidy interface issues between, in particular the Biosecurity Act and the WAC Act. Recently wallabies and possums were removed from control under the WAC Act in response to concerns from regional councils that control under the WAC Act made management under the Biosecurity Act difficult. While that resolved one area of uncertainty, similar issues remain in respect of feral goats (i.e. whether regional councils can control goats when that is the specific role of DOC under the WAC Act).

The WAC Act contains a schedule of 'wild animals' that includes deer, tahr, chamois, feral goats and feral pigs, and declares all wild animals to be the property of the Crown.

The WAC Act has a purpose of controlling wild animals generally, and of eradicating wild animals locally where necessary and practicable, as dictated by proper land use '...to ensure concerted action against the damaging effects of wild animals on vegetation, soils, waters, and wildlife and achieve co-ordination of hunting measures...'. However, other purposes include to 'achieve co-ordination of hunting measures and provide for the regulation of recreational hunting, commercial hunting, wild animal recovery operations, and the training and employment of staff'.

The WACA applies to all land (public and private) and gives the Minister of Conservation a range of powers including to:

- Control the capture and liberation of wild animals
- Control the farming and breeding of animals
- Enter private land to kill animals
- Control hunting.

In a practical sense the WAC Act is important tool to be able to maintain or create areas free of certain wild animals (or maintain certain populations, such as tahr, at agreed levels). Northland, for example, is a declared deer-free zone. WAC Act powers are used by DOC to eradicate (often in conjunction with regional councils) populations that have been illegally released (as has occurred multiple times in Northland for example). Other powers can be used to stop farming of certain animals (such as goats).

While the WAC Act has proved a necessary and effective tool, the relationship between the RMA (that controls land use), the Biosecurity Act (that empowers regional councils with pest management powers) and the WAC Act (that also controls some land use and some pest management) is not as clear as it might be.

There is no doubt that the risk of people illegally introducing certain pest species (including freshwater fish species) continues to be a major threat to indigenous biodiversity. While action under the WAC Act may be 'fighting fires' as they arise, knowledge of the Act and the controls and offenses under it, are not well known among the public generally.

More action is required to:

- Resolve legislative interface issues and inconsistencies (including, for example, ensuring alignment between land use rules of district plans and WAC Act controls over the farming of certain species)
- Raise awareness of the controls in place under the WAC Act (and the Freshwater Fisheries regulations prepared under the Conservation Act) and the need for/purpose of those controls
- Undertake surveillance activity to enable early detection of illegal releases
- Resolve issues in relation to whether wild animals are a (hunting) resource or a pest and thus the purpose of population control
- Improve compliance monitoring and enforcement.

Recommendation

- 5.7 That DOC, Ministry for Primary Industries and MfE review the interface between the Biosecurity Act, Wild Animals Control Act and the RMA to ensure that, without losing important powers, the regimes are better integrated to:
- a) Provide a modern and seamless regime for the effective management of animals that pose a risk to biodiversity; and
 - b) Ensure that any uncertainty regarding regional councils' ability to use powers under the Biosecurity Act in respect of animals controlled under the Wild Animals Control Act is removed.

New riparian planting

Maintenance of a vegetated riparian strip of an adequate width is known to be beneficial in reducing some impacts of land use on freshwater quality. There are also opportunities for riparian strips to be the connection between the mountains and the sea, and potentially between isolated areas of significant indigenous vegetation. These plantings can provide new habitat for indigenous species, food sources and nesting sites.

As riparian vegetation can also be a corridor for pest species to move through the landscape, management of predators and weeds should also be actively encouraged and supported. It would be perverse if any requirement to control pest species led to a discouragement in such planting.

Inappropriate plantings can also be a risk to biodiversity, creating opportunities for introduced plants to interbreed with or outcompete local genetic variants. Consideration of appropriate eco-sourcing of plant material may therefore be required and advice in this regard should be made available.

The government is considering regulations relating to the exclusion of stock from waterways. An opportunity exists to use this to encourage maintenance of vegetated riparian margins, where feasible and appropriate, as part of good management practice.

To incentivise planting activity and its significant benefits, government should ensure funding assistance through contestable funds and council grant schemes is available.

Recommendations

- 5.8 The Ministry for the Environment to include consideration of co-benefits for biodiversity if progressing regulations for stock exclusion.
- 5.9 Government to ensure these co-benefits are realised, by providing and encouraging the establishment of funding assistance, through contestable funds and council grant schemes, that should be available to both individual landowners and catchment/community groups.

Biodiversity/conservation law reform and tangata whenua

The need for biodiversity and conservation law reform to address the recognition of rights around, and control of, traditional Māori knowledge, customs and relationships with the environment has been well documented in the Waitangi Tribunal's report on the WAI 262 claim.

In 2011, the Tribunal concluded that a 'Treaty-compliant environment management regime' is needed that balances kaitiaki interests alongside other legitimate interests to deliver the following outcomes:

- **'control** by Māori of environmental management in respect of taonga, where it is found that the kaitiaki interest should be accorded priority
- **partnership models** for environmental management in respect of taonga, where it is found that kaitiaki should have a say in decision-making but other voices should also be heard
- **effective influence and appropriate priority** to the kaitiaki interests in all areas of environmental management when the decisions are made by others'.³³

The Tribunal found that the current system does not provide for these outcomes and recommended that these shortcomings be remedied urgently. While some of the recommendations made in WAI 262 are responded to in the BCG's draft National Policy Statement, other recommendations relate to broader institutional matters that are beyond the scope of the BCG's work but warrant further attention by way of a comprehensive review of the legislative framework.

Recommendation

- 5.10 That the recommendations made by the Waitangi Tribunal within the Wai 262 Report (2011) are taken into account as part of the review of the Aotearoa New Zealand's Biodiversity Strategy as well as during an iterative review and refresh of the biodiversity/conservation legislative framework.

³³ Waitangi Tribunal (2011). *Ko Aotearoa Tēnei (WAI 262 report)*, pp. 112, 118.

Reconsider limitations on tree protection

Amendments to the RMA that came into force in 2012 and 2013 prohibit 'blanket tree protection rules' in urban environments, except within a reserve or an area subject to a conservation management plan or conservation management strategy. The provisions require councils to specifically identify 'notable' trees for protection in a plan, either individually or as part of a definable group. Individual specimens or small groups of native trees (or exotic vegetation that provides important urban habitat for native fauna) are unlikely to be identified as a significant natural area, and rely on tree protection rules to prevent their loss.

Research demonstrates that in areas with weak tree protection provisions, removal of vegetation is more widespread and rapid than where tree protection is more stringent.³⁴ In areas facing urban development pressure, there are significant drivers to remove trees and other vegetation to maximise development potential (particularly infill housing). Implementation of the National Policy Statement on Urban Development Capacity 2017 is likely to increase prioritisation of space for urban development over space for vegetation. The RMA's limitations on tree protection mean councils are faced with the onerous task of identifying individual trees or groups of trees in order to retain vegetation in urban areas, particularly where trees on private property make an important contribution to an area's overall vegetation.

Protection of indigenous biodiversity should not be a responsibility that is left to rural areas. The urban forest has significant ecological, social, cultural and economic values. Valuable vegetation tends to be spread over both public and private land. In Auckland, a significant proportion of the remaining mature trees are located on private land. Yet evidence from the Auckland Unitary Plan hearings showed that Auckland's Schedule of Notable Trees protects just 15 per cent of the large trees in the urban centre, and is biased toward older and wealthier suburbs (where the majority of Auckland's older and larger trees are located), with new and low socio-economic areas having limited or less established tree cover and very little of that protected. Few threatened species are represented. Alternative approaches have been proposed (by a University of Auckland study) such as using species and tree targets for each suburb. This approach is considered likely to improve biodiversity outcomes and ensure the benefits of trees are enjoyed by more than just residents of more established and affluent suburbs.³⁵

In order to promote maintenance of indigenous biodiversity in urban areas, increase opportunities for people to experience nature across all socio-economic urban areas and reduce the administrative burden on councils, the tree protection limits in the RMA should be reconsidered.

³⁴ Brown M., Simcock R, Greenhalgh S. (2015). 'Protecting the urban forest'. *Landcare Research Policy Brief* No. 13. July 2015.

³⁵ Wyse, Sarah V., Beggs, Jacqueline R., Burns, Bruce R. and Stanley, Margaret C. (2015). 'Protecting trees at an individual level provides insufficient safeguard for urban forests', *Landscape and Urban Planning*, 141, pp. 112–122.

Recommendations

5.11 The Ministry for the Environment to review evidence of the impact of RMA tree protection limits on:

- Maintenance of indigenous biodiversity in urban areas
- Opportunities for people to experience nature across all socio-economic urban areas
- Administrative burden on local authorities
- Taking into account community and landowner perspectives.

On completion of the review in Recommendation 5.6 make amendments to section 76 of the RMA to ensure maintenance of indigenous biodiversity.

6. Improved compliance, monitoring and enforcement

Objective: Resourcing and implementation of compliance, monitoring and enforcement functions by local authorities to ensure activities are managed to avoid biodiversity loss.

Commitment to and resourcing of compliance, monitoring and enforcement

Compliance, monitoring, and enforcement (CME) refers to measures taken to ensure adherence with rules or other requirements in order to achieve the purpose of legislation or policy.³⁶ Poor CME by local authorities is a cross-cutting RMA issue. Research shows Aotearoa New Zealand's institutions are not fulfilling this function well, which is resulting in significant environmental harm.³⁷ The way in which biodiversity is typically managed by plans means that biodiversity is particularly vulnerable to degradation and loss from poor CME, for example:

- There is a heavy reliance on permitted activity standards to maintain indigenous biodiversity, in particular for indigenous vegetation clearance. Permitted activity standards are set at the point at which a local authority is no longer confident clearance can occur at a rate that will maintain biodiversity or protect significant natural areas. This means that unless monitored and enforced, loss of indigenous vegetation and associated habitat will occur beyond what was contemplated and beyond the level at which biodiversity is maintained.
- Resource consent conditions requiring mitigation, remediation, offsetting, or compensation are often subject to long timeframes. If those conditions are not complied with then biodiversity outcomes anticipated when consents were granted will not be realised.
- Biodiversity is not easy to visually define or monitor because it is made of up of multiple components of a diverse range of ecosystems. As a result, it is particularly susceptible to cumulative effects and gradual loss: 'death by 1000 cuts'. Every failure to monitor and enforce non-compliance with plan rules and consent conditions is another 'cut'.

Significant shortcomings in the way the CME is carried out in Aotearoa New Zealand were identified in a 2017 report.³⁸ Key factors identified both in this report and by the BCG include:

- Lack of financial and physical resources being available or allocated to this function
- Inadequate training opportunities for enforcement officers, resulting in a lack of professionalism and skill to deal with the technical, social, and political difficulties of enforcement

³⁶ Brown M., *Last line of Defence: Compliance, monitoring, and enforcement*, (NZ Law Foundation, EDS) 2017.

³⁷ Ibid.

³⁸ Ibid.

- Unclear career pathways for environmental enforcement officers when compared with comparable professions
- Reluctance to undertake CME due to fear of public perception and political pressure from elected officials
- Non-independent decision-making on whether enforcement action should be taken.

The BCG has identified two measures it considers are critical to improving CME under the RMA in order to improve biodiversity outcomes. The first is to develop an environmental enforcement accreditation programme to improve the status of CME as a profession, and ensure officers are properly skilled and maintain their aptitude for the job. The second is to develop a central hub of professionals to provide expert CME assistance to small local authorities or local authorities where political pressure has been revealed to be severely compromising CME.

The BCG considers these recommendations are achievable in the short term because the administrative structures and mechanisms for their implementation already exists: the G-REG Level 3 Core Knowledge Certificate for regulatory compliance could be implemented through the government's recently established Enforcement Unit or the Environmental Protection Authority.

Recommendations

- 6.1 Local authorities must have human and financial resources specifically allocated to CME. This must be detailed as a method in relevant planning instruments and in the Regional Biodiversity Strategy.
- 6.2 The G-REG Level 3 Core Knowledge Certificate for regulatory compliance be analysed to determine whether it covers all appropriate matters for compliance under the RMA or whether additional biodiversity-specific modules need to be incorporated for RMA enforcement officers undertaking the programme. If required additional biodiversity-specific modules be developed and be included in the G-REG programme.
- 6.3 A mandatory requirement for professional accreditation for RMA enforcement officers be introduced requiring successful completion of the G-REG Level 3 Core Knowledge Certificate, including any additional modules incorporated under recommendation 1.
- 6.4 A central hub be developed with capacity to provide advice on biodiversity compliance monitoring and enforcement, and to coordinate and support mutual assistance amongst councils.
- 6.5 The central hub or a separate entity also has the role and capacity to assist directly with enforcement actions.
- 6.6 There is a centralised audit function to assess how well enforcement functions are undertaken and to take action where they are not adequate.

The BCG notes that some or all of the above functions are likely to fall within the remit of the new RMA 'Oversight Unit'.

Part 4: Annexes

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Appendix 1: Summary of evidence received by the Biodiversity Collaborative Group on biodiversity pressure, state and trends

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Introduction

This report summarises the information received on biodiversity pressure, state and trends by the Biodiversity Collaborative Group (**BCG**) to inform its decisions and recommendations for a National Policy Statement on Biodiversity (**NPS**) and complementary supporting measures (**CSM**).

The scope of the report is limited to biodiversity pressure, state and trends, as well as comments on information gaps identified and potential solutions to addressing biodiversity issues. It does not include other information received by the BCG such as that relating to the regulatory system, roles of agencies responsible for biodiversity management, or Mātauranga Māori.

The report draws on the following information received by the BCG:

- Presentations and supporting documents
- Circulated reading documents
- BCG commissioned research

The report is structured by topic, with material received summarised in a table under the following headings:

- Name of report/presentation, presenter, date received by the BCG
- State & Trend
- Pressures
- Current Actions
- Gaps and Issues Raised
- Solutions Suggested by author/presenter

The first section, “Overall Biodiversity” covers information received on biodiversity generally.

This is followed by sections on specific topics, e.g., “Freshwater Biodiversity”.

Where a report or presentation covered more than one topic, that information is presented in each topic area (e.g., “Overall Biodiversity” and “Birds”).

While other topics may warrant a separate section (e.g., “Terrestrial Biodiversity” or “Dune Systems”), because specific information was not received on these topics, information pertaining to them is covered in the “Overall Biodiversity” section.

Summary

State and trend

The experts on Aotearoa New Zealand's biodiversity referenced in this document, concur that assessing biodiversity state and trends is complicated by significant gaps in data coverage and scale as well as the inconsistent use of monitoring methodologies and reporting systems.

Despite these information deficiencies, the evidence is consistent and can be summarised at a very high level as follows:

- Remaining indigenous vegetation cover is mostly in hilly and mountainous areas, with only small fragments in lowland and coastal environments
- Between 1996-2012 there was a net loss of 71,000 hectares of indigenous land cover (~1%), mostly in least represented areas of lowland and coastal environments
- Between 2001-2016, 214 wetlands were lost (~ 1,250 hectares), primarily converted to pasture
- 2/3 of rare and naturally uncommon ecosystems are threatened
- 83% (285 of 344 taxa) of land vertebrates classified in the threatened species system are threatened or at risk of extinction
- Between 2005 and 2011, extinction risk worsened for 8 freshwater fish species
- Between 2010 and 2016, extinction risk worsened for 7 (of 77 threatened) bird species, 3 gecko species, and 1 species of wētā
- Between 2012 and 2016, extinction risk reduced for 20 bird species, largely due to intensive conservation management (1/4 of these are still classified as threatened with extinction)

Pressures

The range of pressures on New Zealand's biodiversity are well understood and include introduced pest plants and animals, disease, nutrient and sediment losses from land, habitat loss and modification and fragmentation (e.g., for urban and agricultural development), and climate change. Many of the experts referenced in this document add that the poor alignment of existing effort and national policy direction is a further pressure – and one that should be most reconcilable.

Where uncertainty arises is in the degree of impact of the range of pressures. It is incontrovertible, for example, that possums are one of the major threats to indigenous forests; it is less certain the extent (and proportion) of the threat of trout to indigenous fish. The loss of indigenous vegetation is a specific and direct loss of indigenous biodiversity and therefore quantifiable, whereas the loss of biodiversity through clearance of exotic vegetation providing habitat for native species is extremely difficult to quantify.

Gaps in land use information,³⁹ the rate of change, and how emergent land use practices impact biodiversity exacerbate the uncertainty around the extent and impact of contemporary activities, such as indigenous vegetation clearance. Public conservation land, for example, increased by more than 1 million hectares between 1990 and 2016 and there was an overall reduction in agricultural land over the same period. Cautionary interpretations of land use change statistics, however, are recommended by the experts. They note that regional rather than national scale assessments, recognising exactly 'where' and 'what type' of change is occurring, is necessary for informing assessments of biodiversity change. Between 1996 and 2012, for example, although the greatest change in land use was from exotic grasslands to exotic forestry, 31,000 hectares of tussock grassland, 24,000 hectares of indigenous shrubland, and 16,000 hectares of indigenous forest was also lost.

These losses were predominantly in lowland and coastal environments where indigenous vegetation is most limited in extent and where naturally uncommon ecosystems are most at risk. Small changes can also misrepresent the impacts of fragmentation which can increase the proportion of vulnerable 'edge habitats', cause species isolation, and make populations more vulnerable to chance events. A further example of caution is necessary in interpreting wetland extent and protection statistics. Although over two-thirds of remaining 'large' wetlands (>100ha) are protected, these large wetlands are predominantly in DOC high-country, and are quite different systems and support different species to smaller wetland types on lowlands of which 214 were lost between 2001 and 2016.

³⁹ Gaps still exist despite the large range of information sources including Land Environments of New Zealand LENZ, Land Cover Database, Agricultural Production Censuses and Surveys aerial photographs, multispectral satellite analysis and imagery, resource consent records, property boundary extents (ie land ownership and title data), Waters of National Significance and Sentinel -2 satellite imagery, Fundamental Soil Layers database.

Biodiversity overview

Introductory reading: *State, trends, pressures and values*. Report. MfE. March 2017.

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
>40 species extinct since human arrival and many more threatened (see Table 1). - Risk of extinction of threatened indigenous species 2005-2011: 7% (59 of 799) worsened 1.5% improved - Most threatened indigenous environments in coastal and lowland areas, esp. east of South Island and most of the North Island. - Rate of loss of indigenous forests has slowed, but not stopped. 1996-2012 10,000 ha of indigenous forest lost. Worst in lowlands where 57% of threatened plant species grow 3% decrease in scrub cover (including exotic species such as gorse) 1990-2008: 70,000 hectares indigenous grassland in SI converted to pasture - Many specialised invertebrates rely on grasslands, e.g., 130-140 species of beetle at two Otago sites.	- Dunes: coastal development and rising sea levels - Growth, development and land conversion - Urbanisation - Rural land use change (area of pastoral farming remained relatively stable 1996-2012 but intensification has occurred) - Infrastructure projects - Nutrients & sediment - Pest plants and animals - Direct human impacts - recreation, tourism, off-road vehicles and tramping threaten 12 of 18 critically endangered terrestrial ecosystems; tourism increases the chances of pests and disease - Climate change likely to be biggest impact - degradation of the alpine zone; flooding may increase egg/chick mortality for braided-river birds; warming increases tuatara ratio of males to females; estuarine habitats will be affected by changing rainfall or sediment discharges, as well as temperature, acidification, sea level and connectivity to the ocean	- Formal protection of high altitude grasslands has increased since 2000 as a result of the tenure review of high country leases. - Low to mid altitude systems are poorly protected and are undergoing rapid land transformation	Nothing noted.	Nothing noted.

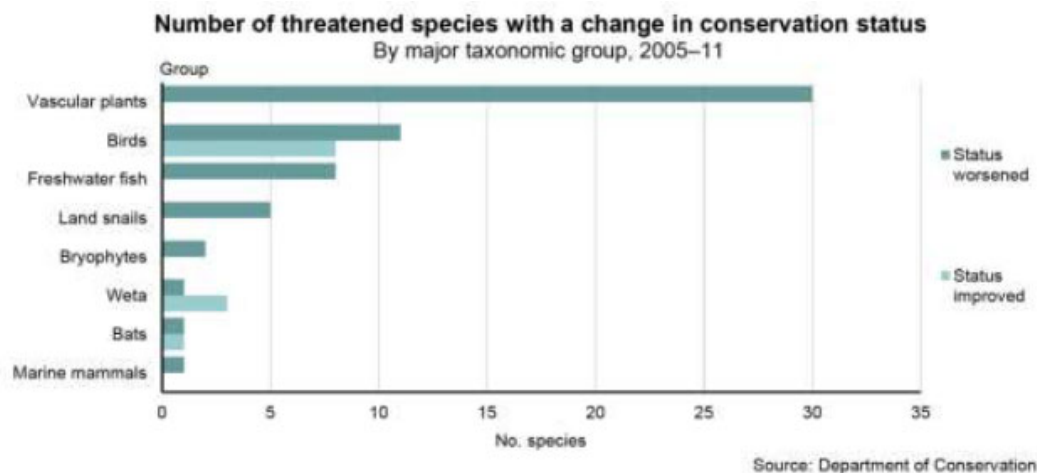
State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
2008-2012: Manuka/kanuka (10, 865 ha) and tall tussock grassland (8, 400 ha) greatest net losses. - Dunes < 20% of 1950s area 71 naturally uncommon ecosystems. Generally small (< 1 ha to 1,000 ha) non-forested, but conditions support unique communities of plants and animals, many of which are threatened. Loss of many of these ecosystems is continuing. Almost two-thirds (45) of the rare ecosystems are also classified as threatened under the IUCN red-list criteria. Of these, 18 (40 %) are critically endangered 1/4 of the world's seabird species breed in NZ, and almost 10 % breed only in our marine environment. 90% of indigenous seabird species and subspecies that breed in New Zealand are threatened or at risk of extinction; risk has increased for eight of the 92 seabird species since 2005	Risk that long lag times means negative impacts of human activities not apparent until too late			

Table 1. Indigenous species that are threatened or at risk of extinction, by taxonomic group (Source: Department of Conservation 2017)

Taxonomic group	Still living (number)	Threatened or at risk (number)	Threatened or at risk (%)
Bats	4	3	75
Birds	203	164	81
Earthworms	171	32	19
Freshwater fish	39	28	72
Freshwater invertebrates	580	148	26
Frogs	4	4	100
Reptiles	57	50	88
Vascular plants	2378	918	39

Source: Department of Conservation; Threat Classification System 2012–14; Hitchmough et al. (2013); de Lange et al. (2013); Robertson et al. (2013); Newman et al. (2013); O'Donnell et al. (2013); Goodman et al. (2014); Grainger et al. (2014); Freeman et al. (2014); Buckley et al. (2015).

Table 2. Number of threatened species with changed conservation status between 2005 and 2008-2011 (Source: Department of Conservation 2017)



Threat classification and prioritisation. Presentation and PowerPoint. Fiona Carswell (Landcare Research).
25 May 2017.

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
70% birds, 100% reptiles/frogs/bats, 80% vascular plants, 38% marine species, 84% freshwater fish, 80% invertebrates are only found in NZ. Threatened: 71/218 birds 289/2542 flowering plants/ferns 47/2547 mosses etc (11065 data deficient) 37/106 reptiles 3/5 bats 304/3859 invertebrates (1297 data deficient) 21/53 freshwater fish 8/31 marine mammals 11/440 marine invertebrates 1996-2012 land cover decline: indigenous forest, broadleaved indigenous hardwoods, tussock grassland, exotic grassland, scrub. Biggest increases in exotic forest, urban, cropping/hort.	6 key pressures: - introduced predators - herbivores - weeds - land use - illegal activities - industrialisation Also, pressure to provide opportunity to offset/compensate for loss but some effects cannot be offset or compensated e.g. very rare places.	Number of classification systems can be used to generate pictorial images of current, past, future state. E.g LENZ map – PAN-NZ map = TEC map.	Data from multiple sources (e.g. citizen science) is not standardised so compilation and use is difficult.	- Need standardised methods for monitoring that can be used across professional and citizen science actions. - Achieving healthy bird populations requires large and connected habitat, rapid population growth (supported by food, predator control, and quality habitat), and strong genetics. - Need a robust process and guidance around offsetting/compensation

Environmental Reporting on land, coastal and marine biodiversity. Presentation and PowerPoint. Fiona Hodge & Pierre Tellier (MfE). 28 June 2017

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
Environment Aotearoa 2015: - Many indigenous plants and animals at risk of extinction, and risk increasing for many - Most land environments < than 10% of indigenous cover 46% land environments < 20% of indigenous cover - Most threatened indigenous environments are coastal, wetland and lowland areas - Still losing habitat, 1996 -2012: ~ 10,000 (0.08%) hectares indigenous forest lost 97,110ha increase in agriculture, forestry, and urban ~ 40% of vascular plants threatened or at risk of extinction 2005-2011: - extinction risk worsened for 30 plants, 11 birds and 1 bat - risk improved for 8 birds, 3 weta and 1 bat > 80% birds threatened or at risk of extinction - Many of our (known) marine species are at risk of extinction 28% of marine mammals are threatened 90% of seabirds threatened or at risk of extinction 86% of shorebirds threatened or at risk of extinction 2008-14, risk of extinction worsened for 8 seabirds; risk improved for 1 seabird and 1 marine mammal	- Terrestrial: Land use conversion is the key threat to indigenous cover. - Freshwater: land use impacts, sedimentation, barriers to fish passage, riparian habitat loss, introduced species. - Possums, rats and stoats in 94% of NZ; feral goats 30% and red deer 57% - Marine: habitat loss, pests & weeds, climate change (also overfishing). - More exotic plant species than indigenous plant species	Protection focused on areas where humans haven't developed; now some ecosystems have minimal or no protection.	Marine data gaps: 1/3 marine mammal species assessed for conservation status are data deficient	- Should prioritise by analysis of which ecosystems have been most heavily lost & which have the least representation on public conservation land. - Outcomes that should be sought: resilience, integrity, connections. - Should avoid fragmentation, loss of extent, loss of condition of threatened areas in particular.

Biodiversity issues and solutions. Presentation and PowerPoint. Bruce Clarkson (University of Waikato).
28 June 2017

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
- Rare ecosystems: total extent < 0.5% (<134,000ha) of NZ's total area. Rare ecosystems contain 50% of NZ's threatened plant species - QE2 covenants >180,000ha, average size 40ha, but median is 5.8ha. - low native cover in urban area; increases out to 20km	- Clearance rates decreased but pressure and severity of impact increased. - Legacy effects especially where habitat type is <10% of area. - Habitat isolation and fragmentation - Novel species assemblages - Lack of ecological knowledge and acceptance - Varied values, human-wildlife conflicts	Nothing noted.	Monitoring issues: - Tier 1 monitoring: misses significant and nationally iconic ecosystems and has uncertain link to management action. Tier 2 is better but significant gaps/variations between regions. - Only 150/3000 threatened species monitored - Resource consent/RMA monitoring and enforcement is poor. - Incentives for private protection insufficient/under resourced. - Lack of connectivity with QE2 covenants. - Variable monitoring and controls in place	- Community monitoring and citizen science need co-ordination and standardisation and to be used more - Region scale action best. Different regions and cities will have different solutions. - Need regional restoration plans to coordinate action. - Urban restoration is key due to population density (+engagement & resourcing) – e.g., 28000 plants planted in 3 hours - Aspiration target of at least 10% with structural requirements/criteria to where e.g. not fragmented. - Priority for action: ecosystems less than 10% with following outcomes / tools: buffering, linking, corridors, stepping stones – “reassemble”. - Monitoring: standardised and universal approach. - Connectivity is a key outcome: starting opportunity is connecting QE2 areas. - Aligned oceans management and governance. - Consistent SOE monitoring and reporting

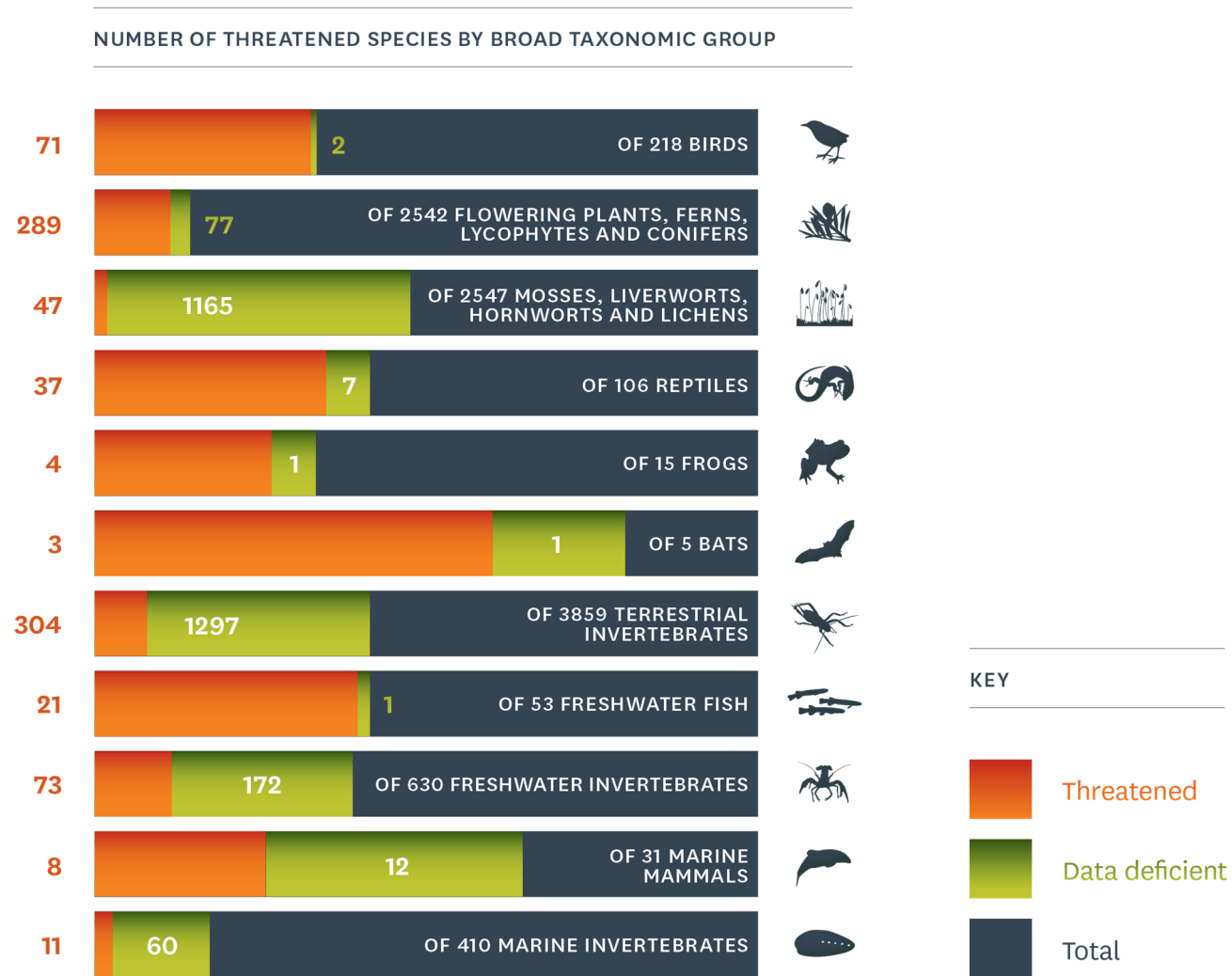


Figure 1. Number of threatened species by taxonomic group (Source: Environment Aotearoa, Ministry for the Environment / Statistics NZ, 2015)

Biodiversity: Supporting Information. E. McGruddy (FFNZ). Dec 2017

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
Review of Environment Aotearoa 2015 - Major indigenous landcover is broadly stable, < 1% change - No baseline for assessing contemporary trends of “naturally uncommon ecosystems” - Widespread forest trees are “doing OK” - Plants “in some trouble” are generally in non-forest communities - Native or recently self-introduced birds or birds of open habitats are “doing ok” e.g., tui - Other endemic birds are in “some trouble”, e.g., kereru - Groups which are in “serious trouble” are mainly the deep endemic (ancient) species, eg, kiwi, wrybill - Populations of most native fish (diadromous species) are “doing ok”; the non-migratory galaxiids centred on the ancient Otago peneplain and recently identified as distinct species are in “serious trouble” - Exotic grassland declined by 175,000 hectares (-1.6%)	- Greatest single threat to terrestrial and freshwater ecosystems is from invasive introduced species (NZ Biodiversity Strategy 2000) - incontrovertible in respect of bird species; and well-supported in respect of critical and declining fish species - Wilding conifers are considered “enemy number one” for weeds (NZ Biodiversity Action Plan (2016-2020)) - Damage from introduced browsers (deer, goats, possums) is less of an issue in current times - Most vulnerable native plants, eg, small turf plants, may only survive or thrive with active management of the more vigorous introduced species - Systematic management of all major pressures (browsers, predators, weeds etc) more effective than removal of just one or two pest species - Connectivity between habitat patches may be hindered not only by structural barriers but	- For wetlands and sand-dunes, naturally uncommon ecosystems, work is in train to clarify extent of recent change - For the conservation estate, DOC been working towards prioritising Ecological Management Units, integrating species and ecosystem management in prioritised areas - For the private estate, DOC/MfE developed a Statement of National Priorities in 2007 to help align partnership investments, ie, to focus conservation efforts where the need is greatest. Predictably, the Statement highlighted non-forest systems (wetlands, sand-dunes, naturally uncommon ecosystems) but these categories are very broad, and little further work has been	- Relationship between intensification opportunities/implications for indigenous vegetation - Drivers behind indigenous cover changes in key regions - Mapping of naturally uncommon ecosystems and threatened plants - Reasons for “genuinely worse” status of threatened plants - Extent to which indigenous fish are prioritised within DOC EMUs, and/or within national priority places - Locations of priority ecosystems for legal protection and/or active management. - Understanding of collaboration of effort “Major research issues to be resolved to determine the circumstances where comparing different versions of the LCDB is fit for purpose as a tool to estimate biodiversity loss” (LCR, 2016).	NPS and complementary measures should be - strongly informed by national strategy and prioritised places - strongly linked to central and regional government financial and operational resources and commitments - strongly emphasise the partnership principle Biodiversity strategies should operate across tenures – with DOC lead partner on the conservation estate, landowners lead partner on the private estate, and Regional Councils lead partner on coordinating integrated public/private operational projects Priority places (or special or significant places) should be spatially mapped. Need strategic coherence across related areas of government policy Need more fine-grained information to support cost-benefit analysis of a range of options before landing

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
- Urban land increased by 20,000 hectares (+10%) - Exotic forest increased by over 200,000 hectares (+11%) - No contemporary national trend data for wetlands is currently available. Some wetland types (eg, pākihi-gumland) may have increased in extent. - High level of legal protection for wetlands: 70% of all wetlands >100ha, and 30% of all wetlands <100ha are held in DOC or other conservation tenure. over 60% of wetlands have legal protection (Robertson, 2015) Of 800 “threatened” species: 12 improved, 8 were birds (due to active management, ie, predator control and/or island translocations) 60 worsened, 30 were plants (work in train to clarify reasons), 11 were birds, and 8 were fish (mainly non-migratory galaxiids) - For the balance – over 700 threatened species – no discernible recent trends reported The NZ Biodiversity Strategy noted that widespread clearance of native vegetation has stopped	also by the presence of invasive species	undertaken in the succeeding ten years to finetune these very broad “priorities”.	- Anthropogenic v. non-anthropogenic causes of deforestation - National data on contemporary state and trends for non-forest ecosystems is very limited - Although conventional wisdom is that NZ is suffering ongoing and serious decline in biodiversity, there is actually a paucity of credible, comprehensive, “state and condition” data at the national or regional scales to support that assertion. Lacking a platform for open access to a comprehensive set of biodiversity information. (Enfocus, 2017)	recommendations for priorities, targets or methods - National priorities for an extended network of legally protected sites on private land with funding increased (or re-aligned) - National priorities for active management of ecosystems on private land, eg, finetuning/ mapping the naturally uncommon ecosystems, with partnership funding - National priorities for active revegetation/re-introduction/restoration on private land, eg, using a range of classification system overlays to identify “hotspot” opportunities for restoration - Active management of introduced plants/weeds may be required to maintain and/or restore threatened plants/uncommon ecosystems

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
Review of Landcare Research reports (Allen et al. 2013; Bellingham et al. 2014): • No native trees or shrubs known to have suffered extinction • Very little if any evidence that populations of common tree species are failing to regenerate, but also little change in the populations of these trees • Over the last 50 years, the area dominated by native woody species has increased				

Our Land 2018. MfE and Statistics NZ. April 2018.

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
1996-2012 - Net loss of 71,000 hectares of indigenous land cover: 31,000 hectares of tussock grassland (decr. 1.3%), 24,000 hectares of indigenous shrubland (decr. 1.3%), and 16,000 hectares of indigenous forests (decr. <1%), through clearance, conversion, and development. Although these areas represent a small proportion of each cover type, the ongoing loss continues to threaten indigenous biodiversity - Coastal and lowland ecosystems that were once widespread (including wetlands) continue to decline in extent - Wetlands have been reduced from around 2,470,000 hectares to around 250,000 hectares, and continue to decline in extent 2001 and 2016: 214 wetlands (~ 1,250 hectares) were lost, with a further 746 wetlands declining in size. Canterbury (231 wetlands), West Coast (135 wetlands), Southland (97 wetlands), and Auckland (94 wetlands) lost or reduced (assessment did not capture new wetlands or any increases in extent). Vast majority of smaller wetlands, which contribute to the full diversity of lowland ecosystems in New Zealand, are on private land surrounded by agricultural landscapes	- Sand dunes: planting of marram grass to stabilise shifting sands for coastal development and farming, and the planting of radiata pine for commercial forestry - Habitat fragmentation creating habitat edges more vulnerable to pests, weeds, and disease - Impacts of pests, weeds, and disease vary across the country, for different ecosystems and different species - Predatory animals are a major cause of species decline - Possums are the major cause of declines in distribution canopy species (pōhutukawa, Hall's tōtara, kāmahī, māhoe, tawa, and rātā) and some smaller understory vegetation (such as patē, heketara) - More trees that are palatable to possums and goats are dying than are being replaced - Disease (e.g. Myrtle rust and Kauri dieback) - In Nelson Lakes National Park, several common and widespread indigenous bird species (bellbird, rifleman, grey warbler, New Zealand tomtit, and tūī) declined over a 30-year monitoring period. These	Nothing noted.	- Lacking a nationally agreed, quantitative, and scalable ecosystem classification and integrated national level monitoring system, to allow consistent assessment of state and risk at ecosystem level. - Limited information on the condition of the full range of indigenous ecosystems. Need better information to assess improvements, degradation, stability and changes in ecosystem processes. - Lacking a measure of habitat fragmentation and its impacts - Conservation status: We require more comprehensive information on the taxonomy, ecology, distribution, and abundance of some species (particularly invertebrates) to robustly assess their conservation status. We currently do not have information to assign a conservation status to 28 percent (2,440 taxa) of assessed terrestrial taxa. Threat: We lack a clear understanding of the distribution, abundance, density, and impacts of pests and weeds, particularly at finer scales.	Nothing noted.

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
2/3 of rare and naturally uncommon ecosystems are threatened 83% (285 of 344 taxa) of indigenous terrestrial vertebrates are threatened or at risk of extinction - Most (see Table 3) reptiles and frogs (85 percent or 103 taxa), most bats (83 percent or five taxa), and most birds (82 percent or 177 taxa) were classified as threatened or at risk of extinction. Over one-third of plants, including vascular plants, mosses, hornworts, and liverworts (37 percent or 1,232 taxa) were threatened or at risk of extinction. These include many of New Zealand's culturally important and taonga birds (eg kākāpō, rock wren, fairy tern, and hoiho/yellowed-eyed penguin) and plants (eg Barlett's rātā and ngutukākā (kākā beak)) - Since humans arrived, at least 76 of our land species have become extinct: 59 bird, 8 plant, 2 reptile, 3 frog, and 4 insect species - Conservation status is worsening for 7 bird species, 3 gecko species, and 1 species of weta - Conservation status is improving for 20 bird species. More than half of these are dependent on intensive conservation management - Sand dunes declined in area by 80 percent between the 1950s and 2008, from around 129,000 hectares to 25,000 hectares	- declines were attributed to the arrival of common wasps, which added to the existing impacts of rat and stoat predation - Many species are at risk because they are 'naturally uncommon', meaning they have a small population size and/or restricted geographic range (particularly snails, earthworms, spiders, and insects). - Wetlands: continued pressure from surrounding land use, including drainage, nutrient enrichment and pollution, grazing, and the impact of invasive weeds (eg exotic willows) and animals (eg koi carp)		- We are also limited in our understanding of diseases and pathogens, their taxonomy and origins, and factors that determine their spread and impacts. Better information would support understanding of where the greatest pressures are on our ecosystems, and their relative risks. - Many unknowns about diseases and pathogens. It can be difficult to identify which pathogens are causing a disease, whether a pathogen is indigenous or exotic, and to understand the source and spread of pathogens - We do not have enough information to assess the conservation status of more than one-quarter (28 percent or 2,440 taxa) of terrestrial taxa that have been considered by the New Zealand Threat Classification System, particularly invertebrates - No coordinated national approach exists to monitor and report on the ecological condition of wetlands in New Zealand, except for recent developments in mapping changes in wetland extent	

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
2013-2016: indigenous bird species outnumbered exotic bird species on 96 percent (739 of 771) of forested sites compared with 75 percent (223 of 298 sites) of non-forested sites distributed across public conservation land - Data indicates a strong connection between wetland loss and a decline in wetland condition - Australasian bittern is now threatened – nationally critical and faces an immediate high risk of extinction due to observed declines				

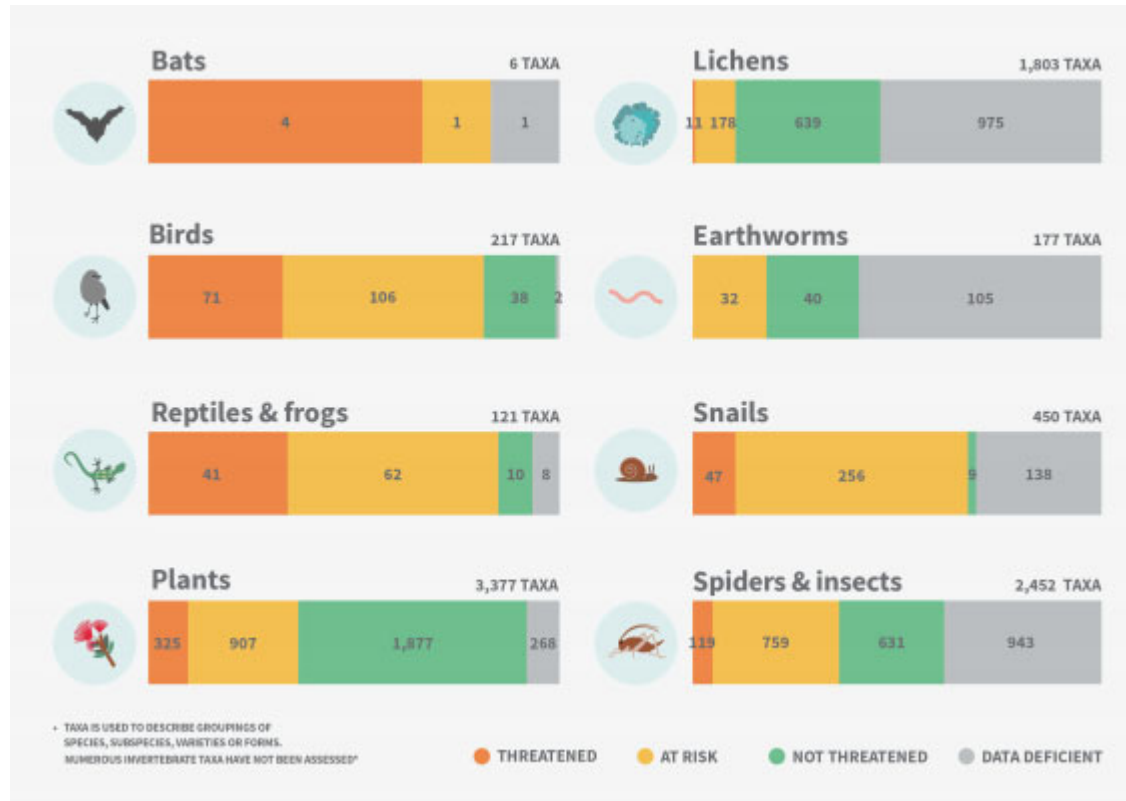


Figure 2. Conservation status of assessed land taxa by taxonomic group (Source: Our Land, Ministry for the Environment / Statistics NZ, 2018)

Critical factors to maintain biodiversity: what effects must be avoided, remediated or mitigated to halt biodiversity loss? Manaaki Whenua Landcare Research. May 2018.

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
New Zealand's indigenous biodiversity continues to decline despite documented intentions to maintain it (DOC & MfE 2000; DOC 2016). 45 of 71 of naturally uncommon ecosystems classified as threatened (18 critically endangered, 17 endangered, 10 vulnerable). 40% of known taxa of plants, 80% of freshwater fish, and 90% of lizards and birds that are not already extinct are Threatened or At Risk. Many large invertebrates also threatened (e.g. snails, wētā). Threat status is known for only the most easily observed and best-known biotic groups, so it is likely that other less well-known groups (e.g. fungi) are also in serious decline.	The degradation and loss of ecosystems and species habitats occurs through: - direct clearance (e.g. clearing of indigenous vegetation for urban development and agricultural and forestry production, damming of rivers, drainage of wetlands) - modification of critical ecosystem properties and drivers as a result of a very wide variety of activities and agents - competition from and resource capture by invasive species - Small mammal predators - Climate change. Biodiversity will not be maintained if irreversible – and therefore permanent – adverse effects on it continue. Biodiversity decline will not be halted if adverse effects that occur today are not remediated until sometime in the future. This is because: - even genuinely temporary effects result in interim ecosystem or habitat loss and interruption of ecological	Nothing noted.	Focus of report is on new activities but states: decline is unlikely to be halted if only new pressures and activities are avoided, because it can take time for the adverse effects on biodiversity of ongoing and legacy activities to be fully realised. Furthermore, loss or decline as a consequence of invasive species or climate change will not necessarily be prevented by avoiding effects now, although maintaining habitat will buffer some of their inevitable impacts.	To maintain indigenous biodiversity it will be necessary to prevent irreversible reductions in the extent and quality of ecosystems and the habitats of indigenous species. Limits on habitat clearance and other activities that alter the properties and processes of ecosystems and habitats of indigenous species must therefore be a central component of policies intended to prevent further loss of biodiversity. <i>See tables in Manaaki Whenua Landcare Research Report.</i> Table A. Avoid: effects that are irreversible (loss is permanent or feasibility of full replacement within 25 years is low) on biodiversity features that are much reduced, threatened or at risk. Table B. Avoid if the effect cannot be fully remedied: effects are potentially reversible or the biodiversity feature is neither much-reduced nor at risk of extinction presently. We assume that for features in this category: - there will need to be an ecological assessment of the feasibility and probability of complete remediation within 25 years - if complete remediation is improbable (which may be the case in a high

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
	processes that can have permanent consequences as the length of time taken for restoration or remediation increases there is greater likelihood that adverse effects will be permanent, cumulative, or both, and eventual restoration (even if feasible) becomes more uncertain as responsibility for achieving restoration is passed to future generations, who may have different priorities (including coping with the effects of global warming), and different legal and regulatory frameworks. Many of New Zealand's remaining indigenous ecosystems and species habitats now cannot be replaced or re-created once lost to development, and it is not possible to remedy many forms of degradation within 25 years or even considerably longer timeframes.			proportion of the features in this category), Avoid would apply.

Habitats

Freshwater

Introductory reading: State, trends, pressures and values [Freshwater parts]. Report. MfE, March 2017.

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
72% of indigenous freshwater fish at risk or threatened with extinction (risk of extinction worsened for 8 of these species between 2005 and 2011) - Diversity of Indigenous fish species declined 1970-2007 - Many freshwater fish have localised distributions so at risk from ecosystem degradation or loss.	- Freshwater fish subject to larger impacts and rates of decline because they primarily occur outside protected areas - Freshwater habitat loss and modification still occurring, esp. in urban and agricultural areas. - Water allocation increased 50%, 1999-2006 - Total nitrogen levels in rivers increased 12%, 1989-2013, increasing periphyton - Nitrogen harmful to fish, but <1 % of monitored river sites have nitrate-nitrogen levels high enough to affect growth of fish species. However, sediment having impact on fish 32% of monitored river sites currently have enough dissolved phosphorus to trigger nuisance periphyton growth. Phosphorus levels have increased in large rivers between 1989 and 2013, while levels have generally decreased in a broader sample of rivers between 1994 and 2013. - Agricultural land surrounds 46% of New Zealand's rivers, and estimated amounts of nitrogen leached into soil from agriculture have increased by 29% between 1990 and 2012. - Climate change likely to be biggest impact, eg, death of cold water-adapted freshwater fish and invertebrates	Nothing noted.	Nothing noted.	Nothing noted.

Summary on freshwater biodiversity and NPSFM. PowerPoint presentation and report. Kate McArthur (Catalyst). April 2017.

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
- Habitats for adult species and spawning of freshwater fish are in decline or degraded - Increase in number of species threatened	- Vegetation clearance in estuarine and riparian margins, earthworks, stock trampling and sedimentation - Excessive periphyton smothering habitat and affecting DO and pH - Fish barriers inhibiting / preventing lifecycle process of migratory fish	- NPSFM attributes addressing ecosystem health - MCI now in NPSFM - Fish barrier guidelines recently released	- Disjointed approach to freshwater and coastal management and regulation - Disjointed approach to fisheries management and regulation - Disjointed regulation of fish barriers - Disjointed approach to freshwater and natural character/landscape management and regulation - Planning gaps - Estuaries (gap between NPSFM and NZCPS) - Feeding and spawning habitat - Missing NOF attributes in NPSFM - Identification of areas of significance (SEAs)	- Additional attributes in NPSFM NOF, e.g., re habitat - Acknowledgement of threatened & vulnerable species and habitats and key habitat function - Address gaps in current legislation re connections, spawning, feeding areas by covering: - estuaries - fish barriers - setbacks - improved and standardised monitoring - SEA criteria - Use Environment Canterbury's (Land and Water Plan Change 4) īnanga spawning habitat model, and associated rules on stock exclusion, land disturbance and earthworks

Freshwater Biodiversity - Issues and management needs. PowerPoint presentation and report. David West, Paula Warren and Natasha Grainger (DOC) with input from Evan Harrison and Lauren Long (MfE). October 2017.

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
- Most lowland freshwater ecosystem types are extinct or threatened. - Ecosystems within protected areas at top of catchments are stable or slow deterioration. - Where land uses are intensifying, deterioration is often rapid, and complete loss of ecological integrity is a high risk. - Most lowland aquatic species facing increasing loss of habitat extent and quality.	- Most freshwater ecosystem values are more affected by direct human impacts (e.g. drainage, pollution) than introduced species - Slipping baselines - Land use change that affects hydrology and diffuse discharges - Abstraction, piping, channelization, reclamation etc. - Changes in connectivity - Logging, burning, grazing - Fish harvesting - Diseases - Loss of spawning sites - Species dependent on a threatened ecosystem type likely to be threatened with extinction. - Introduced species - Real or perceived problems in management of eeling and whitebaiting	- Preventing threats from operating (biosecurity controls, legal protection of waterbody, rules in RMA plans, fencing etc) - Restoration - Replacement (of limited value due to difficulty) - Clean up programmes - Some freshwater sites being restored by communities - Freshwater Fisheries Regulations under review - Fish Passage Advisory Group - Species recovery programmes - management of eeling and whitebaiting, being assessed by MPI and DOC	- Failures in management of cumulative impacts - Focus on water quantity and quality, not on waterbody physical form or ecosystem features - Difficulties reversing loss - Poor understanding of freshwater systems - Lack of ongoing representative biodiversity monitoring - Poor use and difficulty of using biosecurity tools; lack of public awareness; deliberate breaches - Difficulties with legal protection of waterbodies and adjacent land - few tools to help design restoration programmes; recover species - focus on wrong issues - WCOs only relate to the water itself, not catchment effects - Heritage orders not used	NPSFM: - Inclusion of wetlands and fish habitat in the NOF - Guidance on “significant values of wetlands” - Guidance on “outstanding waterbodies” - Guidance on where specific values are located and key parameters of the waterbody that need to be managed to maintain those values - National direction on matters such as channelization, alteration of banks, catchment vegetation, gravel extraction, etc - Better management of data and modelling - tools to develop cost-effective regional planning rules, and most cost-effective restoration activities - development, compilation and dissemination of best practice in restoration and waterbody management - legal protection levels, stock exclusion, public access, and

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
			• RMA plans generally not used to manage landuses that affect waterbodies; District plans do, but don't tackle cumulative effects • Lag time for NPSFM implementation (and doesn't address habitat effects) • Lack of active enforcement of Freshwater Fisheries Regulations 1983 • difficulties of wetland restoration within large catchments • little success at catchment scale restoration	support for community restoration • funding for smaller restoration projects • Biosecurity Act pathway plans to address key freshwater risks

Biodiversity: Supporting Information (Freshwater parts). E. McGruddy (FFNZ). Dec 2017

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
Populations of most native fish (diadromous species) are “doing ok”; the non-migratory galaxiids centred on the ancient Otago penepain and recently identified as distinct species are in “serious trouble”. Majority of the threatened species occur in Canterbury and Otago (non-migratory galaxiids) Of 50 resident native fish, 40% (21 species) are threatened 2009-13 (change in status): • Critical 4 to 5 • Endangered 3 to 6 • Vulnerable 7 to 10 2005-11: 8 species worse (non-migratory galaxiids, plus Canterbury mudfish). Longfin eel: period of decline from the early 1990s to the late 2000s, followed by relatively stable abundance (Haro et al, 2015). • 1977-2015: All species with increasing trends were native, and all species with decreasing trends were exotic (Crow et al, 2016)	• 9 fish species, 11 invertebrate species and 41 plant species as pests of greatest concern (EA2015) • Key pressure being introduced predatory fish and mammalian predators	Nothing noted.	• Longfin eel: Further development is required before the adequacy and relevance of the results for management of the stock can be evaluated • lacking integration of the different information sources • lacking integration on state, trends and pressures on native fish	Key management action is maintaining barriers to trout passage

Wetlands

Introductory reading: State, trends, pressures and values (Wetlands parts]. Report. MfE, March 2017.

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
- Wetlands: 10 % of their original extent. - Wetland losses are continuing to occur.	Wetlands - lowest levels in areas characterised by land favoured for agriculture e.g. the Waikato region. In Taranaki 63 small freshwater wetlands were drained between 1995 and 2013, in Waikato 600 ha of freshwater wetland were drained between 1995 and 2002 (Myers et al., 2013). In Southland, around 10% of wetlands on private land have been lost in the last 7 years. Remaining freshwater wetlands are heavily fragmented, and often in poor condition. Small remnants can be biodiversity cores for restoration.	Nothing noted.	Nothing noted.	Nothing noted.

Wetland extent. Handout. Landcare. 24 May 2017

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
		- Two contemporary databases map wetland extent at the national level: the Land Cover Database (LCDB) and Waters of National Importance (WONI). - WONI has the richer description. WONI depicts both pre-human and contemporary (c2003) wetland extent in a classification supported by a comprehensive set of evidential data.	- Mapping and monitoring wetland extent is critically impaired by the disconnection between national and regional databases, and the lack of regular updating to support national reporting. - WONI and LCDB have different wetland extents, exposing a potential for contradictory statistics	Considerable value could be realised (at nominal cost) by reconciling differences between WONI and LCDB such that LCDB became the vehicle for updating WONI, and by strengthening the relationship of regional databases with WONI so that local detail could enrich the national databases.

Wetland Policy in NZ - are current approaches working? Report and presentation. Paper by S Myers presented by Jo Burton & Helli Ward, MFE. 14 February 2018.

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
- A review of current wetland management approaches in New Zealand including rules in regional and district plans restricting ecologically damaging activities in wetlands. - Wetland loss in NZ has been more significant than in many other parts of the world, and ecosystems in the fertile lowlands have been the most severely impacted.	- Majority of lowland wetlands are on private land and many are small (many plans allow clearance of smaller wetlands, e.g. up to 1000m²) - Half of regional plans don't have strong regulation for wetland drainage.	Nothing noted.	Nothing noted.	- NPS bottom lines for preventing drainage and modification of wetlands - Baseline for protection of diversity of wetlands - Mix of statutory and non-statutory methods - Monitoring of effectiveness - Better monitoring of wetland extent and condition - Continued restoration of wetlands and development of best practice. - Identification of wetlands on private land in partnership with communities and landowners - Resources for voluntary protection

Report on the implementation of the Ramsar Convention on Wetlands, NZ Government, 2018. Jo Burton & Helli Ward, MFE. 14 February 2018.

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
The condition of wetlands during the last triennium: a) Ramsar Sites – no change b) wetlands generally – status deteriorated - Wetland extent has greatly reduced since human arrival in New Zealand and losses continue. For example, a report published by Environment Southland (2016) reported that over 1200 ha of wetlands were lost between 2007 and 2015 in Southland, equivalent to a 10% loss in the Southland study area since 2007 ¾ of fish, 1/3 of invertebrates, and 1/3 of wetland plants are threatened with, or at risk of, extinction.	- Complexity of wetland planning and management being under the jurisdiction of several agencies. - Urban and primary sector development have created legacy issues that need to be addressed by long term planning and management of wetlands - introduced mammals, fish, plants, invertebrates and other exotic life forms, including microbes	- National Wetland Inventory: (FENZ) geodatabase of inland palustrine wetlands, rivers/streams and lakes consists of a large set of spatial data layers and supporting information on New Zealand's rivers, lakes and wetlands. - Geospatial mapping of coastal wetlands, including their environmental values, has also been compiled as part of an inventory of New Zealand Coastal Hydrosystems and associated coastal classification framework (Hume et al. 2016). - A draft Communication, Education, Participation and Awareness (CEPA) Action Plan has been prepared to provide a national framework for coordinated delivery of wetland CEPA in New Zealand. It sets out actions and priorities for the next 10 years, identifying who might lead the action and who the target audience is. It covers all five components of CEPA with the overall strategic intent of empowering people to take action for wetlands. - New national guidelines to the assessment of potential Ramsar Sites in New Zealand being developed - Freshwater Improvement Fund, Arawai Kākāriki and Living Water - NPS for Indigenous Biodiversity to be developed - Wetland issues/benefits been incorporated into all national strategies and planning processes except urban development - More than 100 wetland dependent species (including river, lake, estuary, and wetland species) are currently targeted in large-scale control and surveillance programmes	- The National Wetland Inventory has not been updated in the last decade - Quantity and quality of water available to, and required by, wetlands has only been partially assessed	- Better tools and cost-effective approaches to reduce the impact of invasive species - Need a national inventory of invasive alien species that currently or potentially impact the ecological character of wetlands - Implement incentive measures and remove perverse incentive measures which discourage conservation and wise use of wetlands

Our Land 2018 (Wetlands parts]. Report. MfE and Statistics NZ, 2018

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
- Wetlands have been reduced from around 2,470,000 hectares to around 250,000 hectares, and continue to decline in extent 2001 and 2016: 214 wetlands (~ 1,250 hectares) were lost, with a further 746 wetlands declining in size. Canterbury (231 wetlands), West Coast (135 wetlands), Southland (97 wetlands), and Auckland (94 wetlands) lost or reduced (assessment did not capture new wetlands or any increases in extent). - Data indicates a strong connection between wetland loss and a decline in wetland condition - Australasian bittern is now threatened – nationally critical and faces an immediate high risk of extinction due to observed declines	- Vast majority of smaller wetlands, which contribute to the full diversity of lowland ecosystems in New Zealand, are on private land surrounded by agricultural landscapes - Wetlands are under continued pressure from surrounding land use, including drainage, nutrient enrichment and pollution, grazing, and the impact of invasive weeds (eg exotic willows) and animals (eg koi carp)	Nothing noted.	No coordinated national approach exists to monitor and report on the ecological condition of wetlands in New Zealand, except for recent developments in mapping changes in wetland extent	Nothing noted.

Biodiversity: Supporting Information (re Wetlands). E. McGruddy (FFNZ). Dec 2017

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
Drawing on Robertson, 2015 - Wetland loss was most significant during early European settlement, then another phase post the world wars - Some wetland types (eg, pākihi-gumland) may have increased⁴⁰ in extent whereas others diminished - High level of legal protection for wetlands: 70% of all wetlands >100ha, and 30% of all wetlands <100ha are held in DOC or other conservation tenure. - Over 60% of wetlands have legal protection	Nothing noted.	Nothing noted.	Limited contemporary data on national state and trends	Nothing noted.

⁴⁰ Note that Robertson (2015) states the extent of some wetland types, e.g., pākihi-gumland, under DOC protection has increased, but not the extent of wetlands themselves.

Uncommon ecosystems and depleted environments

Naturally uncommon ecosystems. Handout. Landcare Research 24 May 2017.

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
Mostly small (<1 to 1000 ha), non-forested, support unique biodiversity. 18 (40 percent) are critically endangered • Coastal • Geothermal • Induced by native vertebrates • Inland and alpine • Subterranean or semi-subterranean • Wetlands.	Nothing noted.	DOC and Landcare Research are mapping. 34 have been mapped	Nothing noted.	Naturally uncommon ecosystems are recognised by DOC and MfE as national priorities for protecting rare and threatened native biodiversity on private land.

Restoration targets for biodiversity depleted environments in New Zealand. Bruce Clarkson. March 2018

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
- Urban centres have resulted in significant depletion of the indigenous biodiversity of the lowland zone and sixty acutely threatened environments are represented within urban and peri-urban zones; - There is significant potential to contribute to protection, restoration and reconstruction of indigenous habitat within urban centres; - When ecosystem cover declines below 10%, an increasingly large proportion of biodiversity is lost; - Reconstruction of indigenous habitat is needed in all biodiversity depleted environments (< 10 % cover) in New Zealand if indigenous biota is to persist; - Ecosystem representation, species occupancy and spatial configuration (including isolation, connectivity) need to be considered at a range of scales in designing optimal interconnected networks for restoring indigenous biodiversity; - Considerations other than ecological are important in selling the concept of protecting our unique biological heritage.	Nothing noted.	Nothing noted.	Nothing noted.	- Accept and promulgate a minimum 10% indigenous target for depleted ecosystems in district and other plans; - Develop regional scale restoration plans addressing issues of spatial configuration and connectivity radiating out from urban centres and other depleted environments; - Monitor progress and restoration practice towards reaching the targets; - Adjust and adapt restoration plans in light of the monitoring and management results

Biodiversity: Supporting Information (re Uncommon Ecosystems). E. McGruddy (FFNZ). Dec 2017

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
- Landcare Research compiled a list of 72 “rare” ecosystems based on literature and discussions with ecologists (Williams et al, 2007) - Naturally uncommon ecosystems contain 145 (85%) of mainland threatened plant species...66 (46%) of which are confined to naturally uncommon ecosystems (Wiser et al, 2013)	Nothing noted.	Nothing noted.	Data on current distributions of NZs naturally uncommon ecosystems and their current rates of change in area are scarce	Main suggestions referenced: - most threatened ecosystem types must be identified - further quantitative data are collected to test and improve the accuracy of the threat assessment - greatest conservation gains are likely to be obtained by concentrating conservation efforts on those most critically threatened

Biodiversity on private land

DoC's role on private land. Presentation and PowerPoint. Peter Brunt (DoC). 25 May 2017.

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
30% of NZ's land area is public conservation land (but not 30% of representative ecosystems) - Significant number of representative ecosystems and threatened species on private land - Trends are not necessarily certain e.g. climate change, land use choices, lag effects	- Legacy effects - Introduced species - Societal expansion and development - Habitat loss and fragmentation mostly in lowland and coastal areas - Some ecosystems and threatened species (esp. plants) will only be retained if managed on private land	- Trend towards landscape, place-based solutions across environments - Number of tools available and being used to differing extents: regulation, partnerships, community groups.	- Missing strategy to tie tools together - RMA tools not being used effectively e.g. spatial planning. - How to connect biodiversity with other objectives, e.g., urban development - Where to direct action - Difficulty of imposing on property rights - Inconsistency in classification, monitoring, implementation - How to prioritise, e.g., ecosystem v species	- Mandate DOC's development of a private land strategy - Define the roles of central and local govt - Looking to the Environment Act and the Conservation Act as well as the RMA

Species

Indigenous birds

Introductory reading: State, trends, pressures and values (re Birds). MfE. March 2017)

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
1/4 of the world's seabird species breed in NZ, and almost 10 % breed only in our marine environment. 90% of indigenous seabird species and subspecies that breed in New Zealand are threatened or at risk of extinction; risk has increased for eight of the 92 seabird species since 2005	Climate change likely to be biggest impact eg, flooding may increase egg/chick mortality for braided-river birds;	Nothing noted.	Nothing noted.	Nothing noted.

Threat classification and prioritisation (re Birds). Presentation and PowerPoint. Fiona Carswell (Landcare Research). 25 May 2017

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
71/218 native birds threatened	Nothing noted.	Nothing noted.	Nothing noted.	Achieving healthy bird populations requires: large and connected habitat, rapid population growth (supported by food, predator control, and quality habitat), strong genetics.

Taonga of an island nation - Saving New Zealand's birds. Jan Wright (PCE) 30 August 2017

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
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• In serious trouble 32% • In some trouble 48% • Doing OK 20% • “Only 20% - one in every five - is in good shape. And one in every three is not far off from following the moa and many others into extinction. The situation is desperate” • Only 13% of the endemic birds are doing OK and 45% are in serious trouble • Three endemic birds have increased their ranges over the last few decades: tui, piwakawaka/fantail and riroriro/grey warbler	• Safety from predators is the most urgent	Nothing noted.	Nothing noted.	Goal: Restoring abundant, diverse, resilient birdlife on the mainland. Required: • Safety from predators • Somewhere to live - habitat • Genetic diversity - resilience Methods: • Predator Free 2050 plan • Predator research • Breakthrough genetic science • Habitat • Genetic diversity – resilience • Funding • Community groups
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Biodiversity: Supporting Information (re Birds). E. McGruddy (FFNZ). Dec 2017

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
- Native or recently self-introduced birds or birds of open habitats “doing ok” e.g., tui - Other endemic birds are in “some trouble”, e.g., kereru - Groups which are in “serious trouble” are mainly the deep endemic (ancient) species, eg, kiwi, wrybill - Of 400 living bird taxa, of which just under 20% (77) are assessed as “threatened” (DOC, 2013) PCE 2017: “Only 20% - one in every five - is in good shape. And one in every three is not far off from following the moa and many others into extinction. The situation is desperate” - Only 13% of the endemic birds are doing OK and 45% are in serious trouble - Three endemic birds have increased their ranges over the last few decades: tui, piwakawaka/fantail and riroriro/grey warbler - Between 2008-2012, 8 species genuinely improved through active management; 11 species genuinely worsened	- Main pressure is mammalian predators (number of reports referenced) - Weed invasions are a serious threat to river birds (DOC, 2016) - Landuse in the catchments of braided rivers potentially impacts on habitats of threatened species, especially as intensification increases. (DOC, 2016)	Nothing noted.	No research conducted in NZ to determine what the precise impacts of land use changes in braided river habitats would be on the viability of threatened species populations	The key management action is predator control (plus weed control in the braided rivers) Multi-species pest control in large areas with existing habitat and extant threatened species – potentially episodic control in the South Island, but sustained control in the North Island Restoration of viable endemic forest bird populations through predator management is more likely to be successful in large, continuous tracts of forest.

Environmental Reporting on land, coastal and marine biodiversity (re Birds). Presentation/ PowerPoint.
 Fiona Hodge & Pierre Tellier (MfE) 28 June 2017

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
2005-2011: - extinction risk worsened for 11 birds - risk improved for 8 birds > 80% birds threatened or at risk of extinction - Many of our (known) marine species are at risk of extinction 28% of marine mammals are threatened 90% of seabirds threatened or at risk of extinction 86% of shorebirds threatened or at risk of extinction 2008-14, risk of extinction worsened for 8 seabirds; risk improved for 1 seabird and 1 marine mammal	- Terrestrial: Land use conversion is the key threat to indigenous cover. - Freshwater: land use impacts, sedimentation, barriers to fish passage, riparian habitat loss, introduced species. - Possums, rats and stoats in 94% of NZ; feral goats 30% and red deer 57% - Marine: habitat loss, pests & weeds, climate change (also overfishing). - More exotic plant species than indigenous plant species	Protection focused on areas where humans haven't developed; now some ecosystems have minimal or no protection.	Marine data gaps: 1/3 marine mammal species assessed for conservation status are data deficient	- Should prioritise by analysis of which ecosystems have been most heavily lost & which have the least representation on public conservation land. - Outcomes that should be sought: resilience, integrity, connections. - Should avoid fragmentation, loss of extent, loss of condition of threatened areas in particular.

Off-site Whio Mitigation. Genesis Energy. 26 October 2017

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
< 3,000 left (cf. Kiwi ~ 70,000)	- Rivers utilised by the Tongariro Power Scheme have some of the most important populations in the country - Whio population declined due to reduced natural flow - Risk of ongoing population collapse on Tongariro as a result of volcanic activity	TPS Whio Mitigation (minimum flows, periphyton/invertebrate monitoring, whio monitoring, offsite mitigations, predator control): - population increase from 85 to >500 in ten years - Increased productivity (fewer single males) 20% increase in the national Whio population in 10 years	Nothing noted.	Nothing noted.

Indigenous plants

Introductory reading: State, trends, pressures and values [re Plants]. Report. MfE. March 2017.

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
- Rate of loss of indigenous forests has slowed, but not stopped. 1996-2012 10,000 ha of indigenous forest lost. Worst in lowlands where 57% of threatened plant species grow 1990-2008: 70,000 hectares indigenous grassland in SI converted to pasture 2008-2012: Manuka/kanuka (10,865 ha) and tall tussock grassland (8,400 ha) greatest net losses. - Loss of naturally uncommon ecosystems where many threatened plant species grow is continuing. Almost two-thirds (45) of the rare ecosystems are also classified as threatened under the IUCN red-list criteria. Of these, 18 (40 %) are critically endangered	- Growth, development and land conversion - Urbanisation - Rural land use change (area of pastoral farming remained relatively stable 1996-2012 but intensification has occurred) - Infrastructure projects - Pest plants and animals - Direct human impacts - recreation, tourism, off-road vehicles and tramping threaten 12 of 18 critically endangered terrestrial ecosystems; tourism increases the chances of pests and disease - Climate change likely to be biggest impact, e.g., degradation of the alpine zone; - Risk that long lag times means negative impacts of human activities not apparent until too late	- Formal protection of high altitude grasslands has increased since 2000 as a result of the tenure review of high country leases. - Low to mid altitude systems are poorly protected and are undergoing rapid land transformation	Nothing noted.	Nothing noted.

Threat classification and prioritisation [re Plants]. Presentation and PowerPoint. Fiona Carswell (Landcare Research). 25 May 2017.

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
80% vascular plants are endemic Threatened: 289/2542 flowering plants/ferns 47/2547 mosses etc. (another 11065 data deficient) 1996-2012 land cover decline: indigenous forest, broadleaved indigenous hardwoods, tussock grassland, exotic grassland, scrub. Biggest increases in exotic forest, urban, cropping/hort.	6 key pressures: - introduced predators - herbivores - weeds - land use - illegal activities - industrialisation Also, pressure to provide opportunity to offset/compensate for loss but some effects cannot be offset or compensated e.g. very rare places.	Number of classification systems can be used to generate pictorial images of current, past, future state. E.g LENZ map – PAN-NZ map = TEC map.	Data from multiple sources (e.g. citizen science) is not standardised so compilation and use is difficult.	- Need standardised methods for monitoring that can be used across professional and citizen science actions. - Achieving healthy bird populations requires large and connected habitat, rapid population growth (supported by food, predator control, and quality habitat), and strong genetics. - Need a robust process and guidance around offsetting/compensation

Environmental Reporting on land, coastal and marine biodiversity [re Plants]. Presentation and PowerPoint.
Fiona Hodge & Pierre Tellier (MfE). 28 June 2017

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
Environment Aotearoa 2015: ~ 40% of vascular plants threatened or at risk of extinction - Most land environments < than 10% of indigenous cover 46% land environments < 20% of indigenous cover - Most threatened indigenous environments are coastal, wetland and lowland areas 1996 -2012: ~ 10,000 (0.08%) hectares indigenous forest lost 97,110ha increase in agriculture, forestry, and urban	- Land use conversion is the key threat to indigenous cover. - Also possums, feral goats and red deer - More exotic plant species than indigenous plant species	Protection focused on areas where humans haven't developed; now some ecosystems have minimal or no protection.	Nothing noted.	- Should prioritise by analysis of which ecosystems have been most heavily lost & which have the least representation on public conservation land. - Outcomes that should be sought: resilience, integrity, connections. - Should avoid fragmentation, loss of extent, loss of condition of threatened areas in particular.

Biodiversity issues and solutions [re Plants]. Presentation and PowerPoint. Bruce Clarkson (University of Waikato).
28 June 2017

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
Rare ecosystems contain 50% of NZ's threatened plant species	- Clearance rates decreased but pressure and severity of impact increased. - Legacy effects especially where habitat type is <10% of area. - Habitat isolation and fragmentation - Novel species assemblages	Nothing noted.	Monitoring issues: - Tier 1 monitoring: misses significant and nationally iconic ecosystems and has uncertain link to management action. Tier 2 is better but significant gaps/variations between regions. - Only 150/3000 threatened species monitored - Resource consent/RMA monitoring and enforcement is poor.	- Community monitoring and citizen science need co-ordination and standardisation and to be used more - Region scale action best. Different regions and cities will have different solutions. - Need regional restoration plans to coordinate action. - Urban restoration is key due to population density (+engagement & resourcing) – e.g., 28000 plants planted in 3 hours

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
	- Lack of ecological knowledge and acceptance - Varied values, human-wildlife conflicts		- Incentives for private protection insufficient/under resourced. - Lack of connectivity with QE2 covenants. - Variable monitoring and controls in place	- Aspiration target of at least 10% with structural requirements/criteria to where e.g. not fragmented. - Priority for action: ecosystems less than 10% with following outcomes / tools: buffering, linking, corridors, stepping stones – “reassemble”. - Monitoring: standardised and universal approach. - Connectivity is a key outcome: starting opportunity is connecting QE2 areas. - Aligned oceans management and governance. - Consistent SOE monitoring and reporting

Biodiversity: Supporting Information (re Plants). E. McGruddy (FFNZ). Dec 2017

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
- No native trees or shrubs known to have suffered extinction - Very little if any evidence that populations of common tree species are failing to regenerate, but also little change in the populations of these trees - Over the last 50 years, the area dominated by native woody species has increased Review of Landcare Research reports (Allen et al. 2013; Bellingham et al. 2014): - No forest species are known to have become extinct in NZ	- Wilding conifers are considered “enemy number one” for weeds (NZ Biodiversity Action Plan (2016-2020)) - Damage from introduced browsers (deer, goats, possums) is less of an issue in current times - Most vulnerable native plants, eg, small turf plants, may only survive or thrive with active	- For wetlands and sand-dunes, naturally uncommon ecosystems, work is in train to clarify extent of recent change - For the conservation estate, DOC been working towards prioritising Ecological Management Units, integrating species and ecosystem	- No explanations are provided for the changes to plants (DOC, 2013) - Drivers behind indigenous cover changes in key regions - Mapping of naturally uncommon ecosystems and threatened plants - Reasons for “genuinely worse” status of threatened plants	- Ordering (and mapping) to illuminate patterns and priorities and the extent to which priority threatened plants correlate with the priority “uncommon ecosystems” - Understand the extent to which threatened plants are located on private land - National priorities for an extended network of legally protected sites on private

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
- Populations of widespread forest trees are generally stable. - Threatened plant lists are dominated by non-forest plants; and a high level of overlap with uncommon ecosystems Change in plant threat status (from EA 2015) - Critical: 141 to 155 - Endangered: 55 to 62 - Vulnerable: 47 to 72 Some plants may be on the brink of extinction (De Lange et al, 2010). 20% threatened plants are found only on private land, while a further 60% occur on both public and private land, albeit with many having their largest populations on private land (Norton and Miller, 2000) - Major indigenous landcover is broadly stable, < 1% change - No baseline for assessing contemporary trends of “naturally uncommon ecosystems” - Widespread forest trees are “doing OK” - Plants “in some trouble” are generally in non-forest communities 2008-2012, of 800 “threatened” species: 60 worsened, 30 were plants (work in train to clarify reasons) - For the balance – over 700 threatened species – no discernible recent trends reported	management of the more vigorous introduced species Connectivity between habitat patches may be hindered not only by structural barriers but also by the presence of invasive species	management in prioritised areas For the private estate, DOC/MfE developed a Statement of National Priorities in 2007 to help align partnership investments, ie, to focus conservation efforts where the need is greatest. Predictably, the Statement highlighted non-forest systems (wetlands, sand-dunes, naturally uncommon ecosystems) but these categories are very broad, and little further work has been undertaken in the succeeding ten years to finetune these very broad “priorities”.	“Major research issues to be resolved to determine the circumstances where comparing different versions of the LCDB is fit for purpose as a tool to estimate biodiversity loss” (LCR, 2016). - Anthropogenic v. non-anthropogenic causes of deforestation - National data on contemporary state and trends for non-forest ecosystems is very limited - Lacking a platform for open access to a comprehensive set of biodiversity information.	land with funding increased (or re-aligned) - National priorities for active management of ecosystems on private land, eg, finetuning/ mapping the naturally uncommon ecosystems, with partnership funding - National priorities for active revegetation/re-introduction/restoration on private land, eg, using a range of classification system overlays to identify “hotspot” opportunities for restoration - Active management of introduced plants/weeds may be required to maintain and/or restore threatened plants/uncommon ecosystems

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
The NZ Biodiversity Strategy noted that widespread clearance of native vegetation has stopped				

Bats

New Zealand Bats - An Overview. Paper. NZ Bat Conservation Network, August, 2018.

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
Long and short-tailed bats were once common and regularly seen by early European settlers. The greater short-tailed bat is probably extinct although some hope it remains on an island off Stewart Island. Short-tailed bats need large areas of old growth native forest but have been found in exotic pine plantations in the central North Island. The isolated populations that remain today are now found mainly on Public Conservation Land including two predator free islands (Te Hauturu-o-Toi/Little Barrier and Whenua Hou/Codfish Islands) and as such have protection from their major threats. The long-tailed bat however lives in much smaller social groups (20-100 bats) and can survive in fragmented landscapes in native and non-native forests. Long-tailed bats are found on a mixture of public and private land and have even been found in Auckland and Hamilton cities. Therefore,	Introduction of predators - rats, stoats, cats, possums as well as loss of habitat has had a devastating effect.	Nothing noted.	Long-tailed bats can be very long lived (>20 years) which means that there may appear to be a viable population of bats but demographics (i.e. the age and sex-ratio) can mean they suddenly disappear. They are slow breeding and have one pup a year, so they are slow to recover from population declines. They have very large home range requirements (110km²) and individuals can fly up to 35 km in a night. Any predator control therefore needs to be landscape wide and cover the roosting and foraging areas. Adult female bats congregate in maternity colonies every year to have their young. They choose specific trees to roost. They usually avoid roosting under bark and in caves and buildings. This means that tree removal can potentially take out a whole colony. They move roosts almost every night, so each colony needs a lot of suitable trees. The trees are not selected randomly – they tend to select the largest and oldest trees in the	See Work flowchart for NZ bat management in NZ Bat Conservation Network Report. Identifying roost areas is the key to understanding how to manage colonies. This process takes time. Development projects need to know where the maternity roosts. Even the smallest development project can have a devastating effect on colonies and cause local extinction. Removal of trees can include loss of critically important breeding trees (whether occupied or not at the time of felling), killing or injuring individual bats while felling trees, disturbance of bats and loss of feeding habitat.

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
management of the species is complicated and challenging.			landscape meaning that the availability of suitable trees is limited. They will not just move to another random tree if disturbed. Use of sub-optimal roosts leads to reduced breeding success. It is therefore very important to conserve traditional roost sites and reducing the number of roosts is likely to have negative impacts on population viability	Long-tailed bats cannot be translocated at present. Long-tailed bats have a strong homing ability, so translocations are likely to be unsuccessful. It is therefore better to manage current populations.

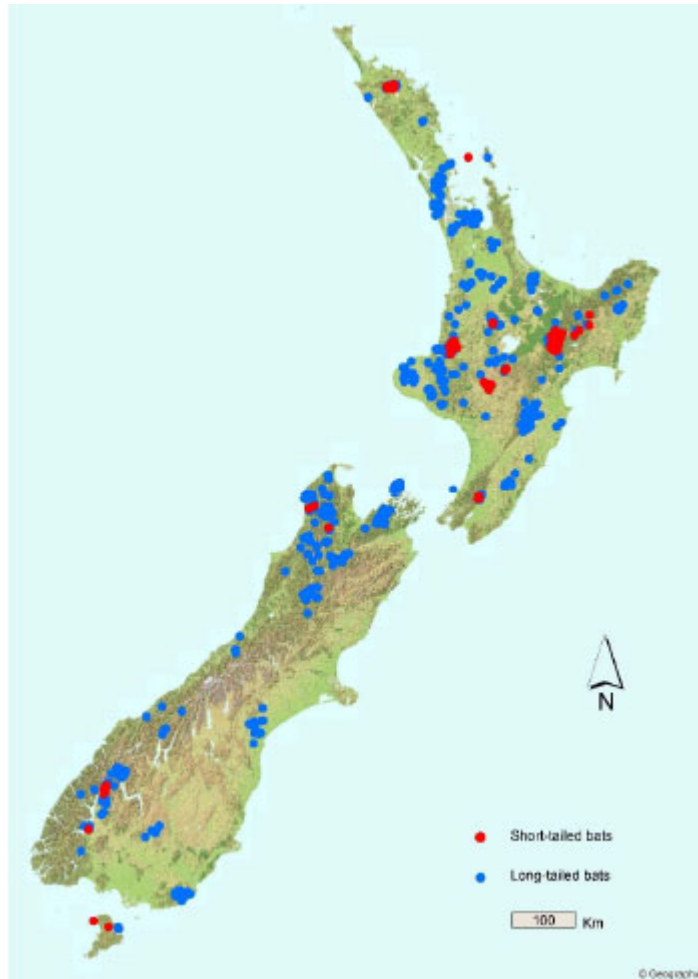


Figure 3. Known Presence of Bats in New Zealand (Source: NZ Bat Conservation Network, 2018).

Landcover, ownership and threatened environments

Analysis from data on land ownership, land cover, and the Threatened Environments Classification. Report.
MfE, August 2018.

State & Trend	Pressures	Current actions	Gaps and Issues Raised	Solutions suggested by author / presenter
- As a proportion of total land area, General land and Māori Land Court Land both have the highest proportions of indigenous forest from the acutely threatened environments (0.5% of land area) which are those areas with less than 10% indigenous cover left. - There is also a higher proportion of indigenous forest that is chronically threatened (10-20% cover left) and at risk (20-30% cover left) on Māori Land Court Land (1.8% and 3.1% of land area respectively) than general land (0.6% and 1.1% of land area respectively).	- Māori landowners would be inequitably disadvantaged if less threatened types of forest (10-20% cover left and 20-30% cover left) were also to have increased protection - Regarding indigenous scrub/shrubland in environments that have less than 10% remaining, there is a four times greater proportion of this cover in general and Māori Land Court land than in other land ownership types.	Nothing noted.	Nothing noted.	Avoid temporary or permanent fragmentation, reduction in size, and/or degradation of the ecological integrity of indigenous vegetation in land environments with less than 20% indigenous cover remaining (pages 25–26 of the report). The total area of indigenous cover in this type of land environment is 513,705 hectares (2% of New Zealand's land area).

Appendix 2: Bibliography

- Bay of Plenty Regional Council. (2017). *Biodiversity Grants Policy*. Retrieved from BOPRC Website: <https://www.boprc.govt.nz/media/770594/regional-direction-and-delivery-committee-meeting-agenda-22-june-2017.pdf> (see page 159).
- Beca Limited and Wildland Consultants Ltd. (2016). *Ministry for the Environment – Biodiversity Planning and Management Research*. Retrieved from Ministry for the Environment Website: <https://www.mfe.govt.nz/sites/default/files/media/Biodiversity/FINAL%20REPORT%20-%20Beca-Wildlands%20for%20MfE%20-%20Biodiversity%20Planning%20and%20Management%20Research.pdf>
- Beef + Lamb. (2018). *Environment Strategy and Implementation Plan 2018-2022*. Retrieved from Beef + Lamb Website: <https://beeflambnz.com/sites/default/files/levies/files/Env-strategy-Imp-plan.pdf>
- Bellingham, M., Lloyd, K., Lundquist, C., Quinn, J., Roper-Lindsay, J., Davis, A., and Fuller, S. (2017). *Assessing Significant Ecological Values – EIANZ New Zealand Chapter & Ecology Special Interest Section*. Retrieved from Environment Institute of Australia and New Zealand Inc Website: <https://www.eianz.org/document/item/4153>
- Bellingham, P., Richardson, S., Gormley, A., Monks, A., and Wiser, S. (2016). *How well are threatened ecosystems protected?* <https://www.doc.govt.nz/contentassets/ebf6dc3ecb554b7a8b8cd3d223501a5f/factual/ecosystems-protection.pdf>
- Brown, M. A. (2018). Transforming community conservation funding in New Zealand. Retrieved from Predator Free NZ Trust: <http://j6tf91d0ueo2tdwbl2hqjle-wpengine.netdna-ssl.com/wp-content/uploads/2018/05/PFNZ-Trust-Transforming-Community-Conservation-Funding-in-NZ-May-2018-compressed.pdf>
- Brown, M., Peart, R., and Wright, M. (2016) *Evaluating the environmental outcomes of the RMA: A report by the Environmental Defence Society*. Retrieved from Environmental Defence Society Website: <http://www.eds.org.nz/our-work/publications/reports/evaluating-the-RMA/>
- Brown, M. (2016). *Last Line of Defence: Compliance, monitoring and enforcement of New Zealand's environmental law*. Retrieved from Environmental Defence Society Website: <http://www.eds.org.nz/our-work/publications/books/last-line-of-defence/>
- Brown, M. (2016) *Compliance, monitoring and enforcement by local authorities under the Resource Management Act 1991*. Retrieved from Ministry for the Environment. Website: <http://www.mfe.govt.nz/publications/rma/compliance-monitoring-and-enforcement-local-authorities-under-resource-management>
- Brown, M. (2016). *Pathways to Prosperity: Safeguarding biodiversity in development*. Retrieved from Environmental Defence Society Website: <http://www.eds.org.nz/our-work/publications/books/pathways-to-prosperity/>
- Brown, M. A. (2017). *Banking on Biodiversity; the feasibility of biodiversity banking in New Zealand*. Retrieved from Environmental Defence Society Website: http://www.eds.org.nz/assets/Publications/Banking%20on%20Biodiversity_%C6%92.pdf
- Brown, M., Simcock, R., and Greenhalgh, S. (2015). *Protecting the urban forest*. Retrieved from Landcare Research Website: https://www.landcareresearch.co.nz/__data/assets/pdf_file/0016/101446/Policy_Brief_13_Protecting_urban_forest.pdf

- Brown, M., Stephens, R., Peart, R., and Fedder, B. (2015) *Vanishing Nature: facing New Zealand's biodiversity crisis*. Retrieved from Environmental Defence Society Website: <http://www.eds.org.nz/our-work/publications/books/vanishing-nature-facing-new-zealands-biodiversity/>
- Carswell, F. (2017). *Overview of datasets used to understand biodiversity*. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>
- Carswell, F. (2017). *Regional Council indicators and measures compared with DOC indicators and measures*. taken from Bellingham PJ, Overton JMcC, Thomson FJ, MacLeod CJ, Holdaway RJ, Wiser SK, Brown M, Gormley AM, Collins D, Latham DM, Bishop C, Rutledge DT, Innes JG, Warburton B (2016) *Standardised terrestrial biodiversity indicators for use by regional councils*. Landcare Research Contract Report: LC2109 prepared for Regional Councils' Biodiversity Monitoring Working Group, Auckland Council, Auckland, New Zealand. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>
- Carver, T. and Kerr S. (2017). *Facilitating Carbon Offsets from Native Forests. An Executive Summary of Working Paper 17-01*. Retrieved from Motu Economic and Public policy Research Trust: <https://motu.nz/assets/Documents/our-work/environment-and-resources/climate-change-mitigation/emissions-trading/Native-Forest-Offset-Options-Exec-Summary.pdf>
- Clarkson, B., Kirby, C., and Wallace, K. (2018). *Restoration targets for biodiversity depleted environments in New Zealand*. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>
- Clarkson, B., and Kirby, C. (2016). Ecological restoration in urban environments in New Zealand. *Ecological Management & Restoration*, 17, 180–190.
- Clarkson, B. R. (2013). *A vegetation tool for wetland delineation in New Zealand*. Retrieved from Landcare Research Website: https://www.landcareresearch.co.nz/__data/assets/pdf_file/0003/71949/vegetation_tool_wetland_delineation.pdf
- de Lange, P., et al. (2017). *NEW ZEALAND THREAT CLASSIFICATION SERIES 22: Conservation status of New Zealand indigenous vascular plants, 2017*. Retrieved from Department of Conservation Website: <https://www.doc.govt.nz/Documents/science-and-technical/nztcs22entire.pdf>
- Department of Conservation. (2018). Project River Recovery, a compensatory agreement between Meridian Energy, Genesis Energy and the Department of Conservation. Retrieved from Department of Conservation Website: <https://www.doc.govt.nz/our-work/project-river-recovery/>
- Department of Conservation. (2018). Whio Forever Recovery Programme agreement between Genesis Energy and Department of Conservation. Retrieved from Department of Conservation Website: <https://www.doc.govt.nz/about-us/our-partners/our-national-partners/genesis/>
- Department of Conservation. (2018). DOC's Monitoring and Reporting System. Retrieved from Department of Conservation Website: <https://www.doc.govt.nz/our-work/monitoring-and-reporting-system/>
- Department of Conservation. (2018). *National Report on the Implementation of the Ramsar Convention on Wetlands*. Retrieved from Department of Conservation Website: <http://www.doc.govt.nz/report-on-the-implementation-of-the-ramsar-convention/>
- Department of Conservation. (2017). *Freshwater Biodiversity – Issues and Management Needs Summary paper for Biodiversity Collaborative Group*. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>

Department of Conservation and Ministry for the Environment. (2007). Protecting our Places - Information about the national priorities for protecting rare and threatened native biodiversity on private land. Retrieved from the Ministry for the Environment Website:

<http://www.mfe.govt.nz/publications/biodiversity/protecting-our-places-information-about-national-priorities-protecting>

Fraser, S., Singleton, P., and Clarkson, B. R. (2018). *Hydric soils - field identification guide*.

Retrieved from Landcare Research Website: https://www.landcareresearch.co.nz/__data/assets/pdf_file/0007/170935/hydric-soils-fieldguide.pdf

Green, W., and Clarkson, B. (2006). *Turning the Tide?: A Review of the First Five Years of the New Zealand Biodiversity Strategy The Synthesis Report*. Retrieved from Department of Conservation Website: <https://www.doc.govt.nz/globalassets/documents/conservation/nzbs-report.pdf>

Green, W., and Clarkson, B. (2006). *Review of the New Zealand Biodiversity Strategy Themes*. Retrieved from Department of Conservation Website: <https://www.doc.govt.nz/globalassets/documents/conservation/nz-biodiversity-strategy-themes.pdf>

Greenhalgh, S., and Hart, G. (2015). Mainstreaming ecosystem services into policy and decision-making: lessons from New Zealand's journey. *International Journal of Biodiversity Science, Ecosystem Services & Management*, 11(3), 205–215

Greenhalgh, S., and Selman, M. (2014). *Review of Policy Instruments for Ecosystem Services*. Retrieved from Landcare Research Website: https://www.landcareresearch.co.nz/__data/assets/pdf_file/0006/74436/Policy_Instruments_for_Ecosystem_Services.pdf

Harding, M. (2018). National Policy Statement on Indigenous Biodiversity: Criteria for RMA s6(c) Assessments. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>

Harding, M. (2018). *Example of an SNA reassessment exercise*. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>

Harding, M. (2016). *Significant Natural Areas, Timaru District: A report on the District-wide survey*. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>

Hawkes Bay Biodiversity. (2017). *Hawke's Bay Biodiversity Action Plan 2017-2020: Putting our strategy into action*. Retrieved from Hawkes Bay Regional Council Website: <https://www.hbrc.govt.nz/assets/Document-Library/Plans/HB-Biodiversity-Action-Plan-2017-2021.pdf>

Hikuroa, D., Slade, A., and Gravley, D. (2011). Implementing Māori indigenous knowledge (mātauranga) in a scientific paradigm: Restoring the mauri to Te Kete Poutama. *MAI Review*, Issue 3, 1–9.

Hikuroa, D. (2016). Mātauranga Māori—the ūkaipō of knowledge in New Zealand. *Journal of the Royal Society of New Zealand*, 47(1), 5–10.

Kingsford, R., Basset, A., and Jackson, L. (2016). Wetlands: conservation's poor cousins. *Aquatic Conservation: Marine and Freshwater Ecosystems*, 26, 892–916.

Land and Water Forum. (2018). *Land and Water Forum advice on improving water quality: preventing degradation and addressing sediment and nitrogen*. Retrieved from Environmental Defence Society Website: <http://www.eds.org.nz/assets/pdf/Land%20and%20Water%20Forum%20advice%20on%20improving%20water%20quality%20-%20preventing%20degradation%20and%20addressing%20sediment%20and%20nitrogen%20-%20May%202018.pdf>

- Landcare Research. (2017). *Naturally uncommon ecosystems factsheets*. Retrieved from Landcare Research Website: <https://www.landcareresearch.co.nz/publications/factsheets/rare-ecosystems>
- Lee, W., McGlone, M., and Wright, E. (2005). Biodiversity Inventory Monitoring: a review of national and international systems and a proposed framework for future biodiversity monitoring by the Department of Conservation. Retrieved from Landcare Research Website: https://www.landcareresearch.co.nz/publications/researchpubs/biodiv_inventory_system_review_framework.pdf
- Maseyk, F., Ussher, G., Kessels, G., Christensen, M., and Brown, M. (2017). *Biodiversity Offsetting under the Resource Management Act; A guidance document*. Retrieved from Local Government New Zealand Website: <http://www.lgnz.co.nz/our-work/our-policy-priorities/3-environment/biodiversity/>
- McArthur, K. (2017). *Summary of presentation to BCG on freshwater biodiversity and NPSFM*. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>
- McArthur, N., Flux, I., and Harvey, A. (2017). *State and trends in the diversity, abundance and distribution of birds in Wellington City*. Retrieved from Greater Wellington Regional Council Website: <http://www.gw.govt.nz/assets/Our-Environment/Environmental-monitoring/Environmental-Reporting/WCC-bird-monitoring-report-2017.pdf>
- McGlone, M., and Lee, W. (2017). *What is biodiversity?* Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>
- McGraddy, E. (2017). *Biodiversity: Supporting Information*. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>
- Ministry for the Environment and Department of Statistics. (2018). *New Zealand's Environmental Reporting Series: Our land 2018*. Retrieved from Ministry for the Environment Website: <http://www.mfe.govt.nz/publications/environmental-reporting/our-land-2018>
- Ministry for the Environment. (2018). *S33 transfers and Mana Whakahono a Rohe*. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>
- Ministry for the Environment. (2018). *Payment for Ecosystem Services*. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>
- Ministry for the Environment. (2018). *Summary of SNA practice in a sample of regional and district councils*. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>
- Ministry for the Environment. (2018). *Analysis from data on land ownership, land cover, and the Threatened Environments Classification*. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>
- Ministry for the Environment. (2017). *Introductory reading: The Policy Landscape*. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>
- Ministry for the Environment. (2017). *Where an NPS fits in New Zealand Biodiversity Strategy*. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>
- Ministry for the Environment. (2017). *Introductory reading: Incentives and interventions for biodiversity management*. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>
- Ministry for the Environment. (2017). *Bonds: supplementary materials to the report entitled Introductory reading: Incentives and interventions for biodiversity management*. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>

Ministry for the Environment. (2017). *Introductory reading; State, pressures, trends and values*. Retrieved from Biodiversity Collaborative Group Website:

<https://www.biodiversitynz.org/documents.html>

Ministry for the Environment. (2017). *Past proposals for national direction on biodiversity*.

Retrieved from Biodiversity Collaborative Group Website:

<https://www.biodiversitynz.org/documents.html>

Ministry for the Environment. (2017). *Property Vegetation Plans in New South Wales*. Retrieved from Biodiversity Collaborative Group Website:

<https://www.biodiversitynz.org/documents.html>

Ministry for the Environment and Department of Statistics. (2017). *New Zealand's Environmental Reporting Series: Our fresh water 2017*. Retrieved from Ministry for the Environment Website:

http://www.mfe.govt.nz/sites/default/files/media/Environmental%20reporting/our-fresh-water-2017_1.pdf

Ministry for the Environment & Statistics New Zealand. (2016). *New Zealand Environmental Reporting Series: Our marine environment 2016*. Retrieved from Ministry for the Environment Website:

<http://www.mfe.govt.nz/sites/default/files/media/Environmental%20reporting/our-marine-environment.pdf>

NZIER. (2017). *Plantation forestry statistics: Contribution of forestry to New Zealand*. Retrieved from New Zealand Forest Owners Association Website:

<https://www.nzfoa.org.nz/resources/file-libraries-resources/discussion-papers/602-nzierreport-2017/file>

Office of the Prime Minister's Chief Science Advisor. (2017). *New Zealand's fresh waters: Values, state, trends and human impacts*. Retrieved from Office of the Prime Minister's Chief Science Advisor Website:

<http://www.pmcsa.org.nz/wp-content/uploads/PMCSA-Freshwater-Report.pdf>

Parliamentary Commissioner for the Environment. (2017). *Taonga of an island nation: Saving New Zealand's birds*. Retrieved from the Parliamentary Commissioner for the Environment Website:

<http://www.pce.parliament.nz/media/1695/taonga-of-an-island-nation-web-final-small.pdf>

Parliamentary Commissioner for the Environment. (2015). *Preparing New Zealand for rising seas: Certainty and Uncertainty*. Retrieved from the Parliamentary Commissioner for the Environment Website:

<https://www.pce.parliament.nz/media/1390/preparing-nz-for-rising-seas-web-small.pdf>

Parliamentary Commissioner for the Environment. (2011). *Evaluation of the use of 1080: predators, poisons and silent forests*. Retrieved from the Parliamentary Commissioner for the Environment Website:

<https://www.pce.parliament.nz/media/1294/evaluating-the-use-of-1080.pdf>

Peterson, P., and Hayman, E. (2018). *Conserving indigenous fauna within production forestry landscapes*. Retrieved from Landcare Research Website:

<http://envirolink.govt.nz/assets/Uploads/1854-GSDC150-Conserving-indigenous-fauna-within-production-forestry-landscapes.pdf>

Porou, T. (2018). *Draft Biodiversity Collaborative Group Paper: Te Kahu o te Taiao (Hutia te Rito)*.

Retrieved from Biodiversity Collaborative Group Website:

<https://www.biodiversitynz.org/documents.html>

- Office of Environment and Heritage, State of New South Wales. (2018). *Biodiversity Conservation Investment Strategy: A strategy to guide investment in private land conservation*. Retrieved from Environment New South Wales Website: <https://www.environment.nsw.gov.au/resources/conservation/biodiversity-conservation-investment-strategy-2018-180080.pdf>
- QEI National Trust. (2017). *A background on QEII National Trust*. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>
- Richardson, S., Clayton, R., Rance, B., Broadbent, H., McGlone, M., and Wilmshurst, J. (2015). Small wetlands are critical for safeguarding rare and threatened plant species. *Applied Vegetation Science*, 18, 230–241.
- Robertson, H. (2016). Wetland reserves in New Zealand: the status of protected areas between 1990 and 2013. *New Zealand Journal of Ecology*, 40(1), 1–11.
- Ruffell, J., and Didham, R. (2016). Conserving biodiversity in New Zealand's lowland landscapes: does forest cover or pest control have a greater effect on native birds? *New Zealand Journal of Ecology*, 41(12), 23–33.
- Ruru, J., Lyver, P., Scott, N., and Edmunds, D. (2017). Reversing the Decline in New Zealand's Biodiversity: empowering Māori within reformed conservation law. *Policy Quarterly*, Volume 13, Issue 2, 65–71.
- Rybicki, J., and Hanski, I. (2013). Species-area relationships and extinctions caused by habitat loss and fragmentation. *Ecology Letters*, 16, 27–38.
- Scrimgeour, F., Kumar, V., and Weenink, G. (2017). *Investment in Covenanted Land Conservation*. Retrieved from QEII National Trust Website: <https://qeii-national-trust.org.nz/wp-content/uploads/2018/04/waikato-investment-covenanted-land.pdf>
- Senior, T. (2018). *Working with landowners to protect biodiversity: some personal reflections*. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>
- Serjeant, D. (2018). *Enhancement Subdivision and Transferable Development Rights*. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>
- Smith, D., Borkin, K., Jones, C., Lindberg, S., Davies, F., and Eccles, G. (2017). *Effects of land transport activities on New Zealand's endemic bat populations: reviews of ecological and regulatory literature*. Retrieved from New Zealand Transport Agency Website: <https://www.nzta.govt.nz/assets/resources/research/reports/623/623-effects-of-land-transport-activities-on-NZs-endemic-bat-populations.pdf>
- Smith, R. (2018). *Consistent Wetland Mapping*. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>
- Smith, R., and Clarkson, B. R. (2018). *Wetland delineation protocols*. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>
- Tanner, C. C., et al. (2013). Bringing together science and policy to protect and enhance wetland ecosystems in agriculture landscapes. *Ecological Engineering* 56 (2013) 1–4. <https://www.journals.elsevier.com/ecological-engineering>
- Taura, Y., (ed.), van Schravendijk-Goodman, C., and Clarkson, B. (2017). *Te reo o te repo = The voice of the wetland: connections, understandings and learnings for the restoration of our wetlands*. Retrieved from Landcare Research Website: https://www.landcareresearch.co.nz/__data/assets/pdf_file/0006/135447/Te-Reo-o-Te-Repo-Voice-of-the-Wetland-complete-book.pdf

- Timoti, P., Lyver, P., Matamua, R., Jones, C., and Tahī, B. (2017) A representation of a *Tuawhenua* worldview guides environmental conservation. *Ecology and Society* 22(4): 20.
- Transpower. (2018). *Te Mauri Hiko – Energy Futures*. Retrieved from Transpower Website: <https://www.transpower.co.nz/sites/default/files/publications/resources/TP%20Energy%20Futures%20-%20Te%20Mauri%20Hiko%2011%20June%2718.pdf>
- Trotman, R., with Papani, T. (2017). Incentivising Private Landowners to Restore Biodiversity in Tairāwhiti: Issues and Recommendations for Gisborne District Council. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>
- Ulrich, S., et al. (2018). The Earth Summit 25 Years on: Why is biodiversity continuing to decline? *Resource Management Journal*, 3(1), 19–24.
- Ulrich, S., et al. (2018). What it Means to “Maintain” Biodiversity in our Coastal Marine Environment. *Resource Management Journal*, 3(1), 25–30.
- Waikato Catchment Ecological Enhancement Trust. (2018). Partnership with Mercury Energy: agreement between Mercury Energy and WCEET. Retrieved from <http://www.wceet.org.nz/partners/>
- Waitangi Tribunal. (2011). *Ko Aotearoa Tēnei: A Report into Claims Concerning New Zealand Law and Policy Affecting Māori Culture and Identity Te Taumata Tuatahi (Wai 262)*. Retrieved from Waitangi Tribunal Website: https://forms.justice.govt.nz/search/Documents/WT/wt_DOC_68356054/KoAotearoaTeneiTT1W.pdf
- Walker, S., William, L., Bellingham, P., Kaine, G., Richardson, S., Brown, Marie., Greenhalgh, S., and Simcock, R. (2018). *Critical factors to maintain biodiversity; what effects must be avoided or mitigated to halt biodiversity loss?* Landcare Research Contract Report LC3116 prepared for the Biodiversity Collaborative Group. Retrieved from Biodiversity Collaborative Group Website: <https://www.biodiversitynz.org/documents.html>
- Willis, G. (2017). *Addressing NZ’s Biodiversity Challenge: A Regional Council thinkpiece on the future of biodiversity management in New Zealand*. Retrieved from Local Government New Zealand Website: <http://www.lgnz.co.nz/assets/Uploads/44744-LGNZ-Biodiversity-wraparound-7-FINAL.pdf>
- Willis, G. (2014). *Biodiversity: Roles and Functions of Regional Councils*. Retrieved from: Horizons Manawatu Website: <http://www.horizons.govt.nz/HRC/media/Media/Agenda-Reports/Strategy-Policy-Committee-2015-14-04/1558AnnexA.pdf>
- Wright, W., Eppink, F., Greenhalgh, S. (2017). Are ecosystem service studies presenting the right information for decision making? *Ecosystem Services*, 25, 128–139.
- Wyse, S., Beggs, J., Burns, B., and Stanley, M. (2015). Protecting trees at an individual level provides insufficient safeguard for urban forests. *Landscape and Urban Planning*, 141, 112–122.

National policy documents

National Environmental Standards for Plantation Forestry 2017

Regulations 2018

<https://www.teururakau.govt.nz/growing-and-harvesting/forestry/national-environmental-standards-for-plantation-forestry/>

National Policy Statement Freshwater Management 2014 (amended 2017)

http://www.mfe.govt.nz/sites/default/files/media/Fresh%20water/nps-freshwater-ameneded-2017_0.pdf

National Policy Statement for Renewable Energy Generation 2011

<https://www.mfe.govt.nz/sites/default/files/nps-reg-2011.pdf>

National Policy Statement for Electricity Transmission 2011

<http://www.mfe.govt.nz/sites/default/files/nps-reg-2011.pdf>

New Zealand Coastal Policy Statement 2010

<https://www.doc.govt.nz/globalassets/documents/conservation/marine-and-coastal/coastal-management/nz-coastal-policy-statement-2010.pdf>

Proposed national policy

Proposed National Policy Statement on Indigenous Biodiversity 2011

https://www.mfe.govt.nz/sites/default/files/media/Biodiversity/Proposed%20National%20Policy%20Statement%20on%20Indigenous%20Biodiversity_0.pdf

Summary of submissions for the Draft 2011 NPS Indigenous Biodiversity

https://www.mfe.govt.nz/sites/default/files/media/Extra%20downloads/Source%20file/summary-of-submissions_sourceFile.doc

Other policy references

New South Wales. Local Land Services Amendment (Land Management—Native Vegetation) Regulation 2017

<https://www.legislation.nsw.gov.au/regulations/2017-445.pdf>

New Zealand Biodiversity Action Plan 2016-2020

<https://www.doc.govt.nz/Documents/conservation/new-zealand-biodiversity-action-plan-2016-2020.pdf>

Conservation and Environment Science Roadmap 2016

https://www.mfe.govt.nz/sites/default/files/media/About/conservation-environment-science-roadmap-discussion-paper_0.pdf

The New Zealand Biodiversity Strategy 2000

<https://www.doc.govt.nz/globalassets/documents/conservation/new-zealand-biodiversity-strategy-2000.pdf>

Hill, D. (2000). *Bio-What? Summary of Submissions*. A report to the Ministry for the Environment summarising submissions made on the preliminary consultation report of the Ministerial Advisory Committee on Biodiversity and Private Land. Retrieved from Ministry for the Environment Website: <https://www.mfe.govt.nz/sites/default/files/media/Land/bio-what-submissions-feb00.pdf>

Convention on Biological Diversity 1992

<https://www.cbd.int/doc/legal/cbd-en.pdf>

Cases

Motiti Rohe Moana Trust, Ngāti Māhino Heritage Trust and Ngāti Ranginui Iwi Incorporated v Bay of Plenty Regional Council. Decision No. [2018] NZEnvC 067.

Waikato Regional Council v Hamilton City Council. ENV – 2014 – AKL – 00167 Consent order dated 1 May 2015.

Appendix 3: Acknowledgements

As trustees of the Indigenous Biodiversity (Land & Freshwater) Stakeholders Trust, we wish to thank the organisations and companies who supported their representatives' participation in the Biodiversity Collaborative Group, as well as the representatives themselves.

We value the guidance and advice offered by active observers from the Ministry for the Environment, Department of Conservation, Ministry for Primary Industries, Land Information NZ and Te Puni Kokiri. Lillian Fougere ably led this group.

Experts from these and other government agencies gave presentations, assisted with field trips and provided advice.

Local Government New Zealand was represented by Alan Johnson and Stephen Hall, of the Regional Biomanagers group whose members provided information and advice. The Territorial Authority reference group reviewed and ground-truthed draft policy. Experts from many councils gave presentations and assisted with field trips.

Office space, meeting rooms and support were provided by members from time to time but primarily by the Ministry for the Environment.

Thank you to the many others, not mentioned here, whose efforts and goodwill helped with our work. We couldn't have done it without you.

We thank our expert advisors and presenters for sharing their knowledge and insights with the Group:

Policy advisors

- Tim Sharp, Sharp Advice Ltd
- Gerard Willis, Enfocus Ltd
- Mark Tamura and Andrew Schollum, MartinJenkins (April 2017 – March 2018)

Ecological advice

- Mike Harding
- Many other ecologists provided advice or feedback via Mike Harding or directly to the group

Planning, policy and scientific advice

- Kate McArthur, Marie Brown and Fleur Maseyk – The Catalyst Group
- Fiona Carswell, Susan Walker, Susie Wiser, Suzie Greenhalgh, Beverley Clarkson, William Lee, Robert Holdaway, Holden Hohaia and members of their teams at Landcare Research Manaaki Whenua
- David Serjeant – Merestone Ltd
- Bruce Clarkson and Catherine Kirby – The University of Waikato
- Martin Neale – Puhoi Stour
- Tina Porou – Poipoia Ltd
- Dan Hikuroa – University of Auckland
- Warwick Scott – Lincoln University

Support team

- Jan Crawford and Hugh Logan – facilitators
- Jack Haddow, Allen + Clarke and Martin Jenkins (April 2017–March 2018) – project coordination
- Dani Konig and Anica Steyn, Federated Farmers – accounting services

Thanks also to the range of people and organisations that gave freely of their knowledge, time and resources to assist the BCG, including those below:

- Brooke Cox – EDS
- Bernie Napp – Straterra
- Abbie Fowler – Genesis
- NZ Bat Conservation Network
- QEII National Trust and Nga Whenua Rahui
- Beef and Lamb NZ
- NZ Transport Authority
- Mark Bellingham – Environment Institute of Australia & NZ Inc
- Nicholas Singers – Ecological Solutions Ltd
- Jill and Richard Simpson
- Francis and Shireen Helps
- Te Manuka Tutahi marae
- John McLennan
- Te Kei Merito
- Judge Layne Harvey
- Brigitte Palmer and the Ohope Scenic reserve guides
- Ian Tarei and the Omataroa reserve guides
- Craig Pauling – Boffa Miskell
- Arihia Tuoho
- Morgan Cox – Kiwi for Kiwis
- Rob Whitbourne – DOC
- Tim Senior – Bay of Plenty Regional Council
- Nardia Yozin, Nick Head, Norm Kelly and Andy Roberts – DOC
- Chris Keeling, Stefanie Rixecker and David Perenara-O'Connell – Environment Canterbury
- Kay Holder – Christchurch City Council
- Quinn Amooore – Taranaki Regional Council
- Liz Tutuhi and Patrick Whaley – Waikato Regional Council
- Tim Porteous and Jamie Steer – Greater Wellington Regional Council
- Jonathan Boow – Auckland Council
- Myfanwy Emeny – Wellington City Council
- Clare Wooding (LGNZ) and members of the TA Reference Group



Sally Gepp – Trustee
Forest & Bird



Chris Allen – Trustee
Federated Farmers